

FM 100-2-2

**Headquarters
Department of the Army**



THE SOVIET ARMY

SPECIALIZED WARFARE AND REAR AREA SUPPORT

**STATEMENT A
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THE SOVIET ARMY:

Specialized Warfare and Rear Area Support

PREFACE

This field manual is part of FM series 100-2, The Soviet Army. The other volumes are FM 100-2-1 The Soviet Army: Operations and Tactics, and FM 100-2-3. The Soviet Army: Troop, Organization and Equipment. These manuals cannot stand alone but should be used interchangeably.

These field manuals serve as the definitive source of unclassified information on Soviet ground forces and their interaction with other services in combined arms warfare. These manuals represent the most current unclassified information and they will be updated periodically. More information would become available in the event of war or national emergency.

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Key comments to the specific page and paragraph in which the change is recommended. Provide a reason for each comment to insure understanding and complete evaluation. To send suggestions or comments prepare DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward it to Deputy Commander USA CACDA, ATTN: ATZL-CATF, Fort Leavenworth, KS 66027.



The cover design is an adaptation of this patch which is worn by Soviet motorized rifle troops, whose organization is representative of the Soviet combined arms theme.

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CHAPTER 1

INTRODUCTION

This field manual is part of FM series 100-2. The Soviet Army. It should be used with the other manuals in this series, FM 100-2-1, The Soviet Army: Operations and Tactics, and FM 100-2-3. The Soviet Army Troops.

Organization and Equipment.

The term "specialized warfare," used in the title of this FM, is intended to be an abbreviated, collective description of combat actions which, in US terminology, may be described as "special operations" or "operations in special conditions." These are arbitrary categorizations used only to describe combat actions other than those general forms of Soviet ground forces operations and tactics discussed in FM 100-2-1. Use of the term "special" does not imply that the combat actions discussed in this FM represent abnormal forms of operations or tactics. They are all an integral part of Soviet military doctrine. Special operations include airborne, heliborne, and amphibious operations, and unconventional warfare in the enemy rear.

AIRBORNE OPERATIONS

During World War II, the Soviets gained some experience with airborne operations in combat. Because they lacked the transport aircraft required for large-scale operations, they employed the airborne troops mainly as infantry. Since the war, the Soviets have completely reequipped their large airborne force and built a large fleet of transport aircraft to support it. Airborne units played key roles in Soviet intervention in Czechoslovakia (1968) and Afghanistan (1979). The airborne force currently consists of seven divisions.

Heliborne operations are relatively new to the Soviets. They have built an impressive fleet of transport and gunship helicopters and have trained assault troops. However, until the Afghanistan intervention, they lacked actual combat experience with this type of operation. Motorized rifle or airborne troops or an air assault brigade assigned to a *front*, could conduct heliborne operations.

AMPHIBIOUS OPERATIONS

Amphibious operations are primarily the responsibility of the Soviet naval infantry (marines), a small but growing force. During World War II, the Soviet Army and Navy conducted many amphibious operations, mainly on river and inland seas within the Soviet Union. They have never conducted massive

amphibious assault operations like those conducted by the US in the Pacific and the Allies in North Africa and Europe during World War II. In recent years, the Soviet naval infantry has been revitalized and reequipped. It currently has three independent regiments and one understrength division and is supported by a growing fleet of amphibious ships and small aircraft carriers. This elite force trains in joint exercises with airborne units, and it undoubtedly has an intervention or power projection mission.

The Soviets have a variety of special purpose units that are trained and equipped for unconventional warfare (UW) missions. Because of their political sensitivity, UW activities are managed at the highest level of government authority. They are directed by the Committee for State Security (KGB) and the General Staff's Main Intelligence Directorate (GRU).

SPECIAL OPERATIONS

Special operations certainly will be conducted in wartime, and some of these will play important roles in peacetime intervention and power projection beyond Soviet borders.

Operations in special conditions include river crossings, mountain and desert warfare, and combat in extreme cold, in cities, and at night.

Soviet ground forces are well equipped and trained for river crossings. The Soviets consider the capability to cross water barriers from the march on a broad front with minimal delays an essential element in maintaining a rapid rate of advance in an offensive. River crossings are a consistent feature of Soviet field exercises.

While no particular Soviet divisions are identified as being tailored or trained specifically for mountain or desert warfare, some divisions are suited for combat in these environments as a result of their base locations. The Soviets undoubtedly are gaining more experience in mountain warfare from their increased use of military force in power projection, such as in Afghanistan.

Soviet ground forces also are well prepared for combat in extreme cold. The majority of Soviet divisions are located in areas with harsh winters.

Based on their World War II experience and recognition of the urbanization of Europe, the Soviets realize that combat in cities would be common to most military operations. Their training reflects this realization.

One of the principles of Soviet operational art and tactics is the prosecution of combat relentlessly, under all conditions of visibility. With this principle, the Soviets strive to be capable of continuous combat, during daylight, or at night. The Soviets conduct much of their training during hours of darkness.

The last part of this FM deals with the organization and functions of the elements which constitute the

Soviet "rear." Collectively, these elements provide what, in US terminology, is called combat service support.

Soviet logistics have been inaccurately described as a major weakness in Soviet military power. Soviet forces do receive effective logistic support, but it is different in concept and organization from US Army logistic support.

CHAPTER 2

AIRBORNE OPERATIONS

Since the 1960s, the Soviets have given increased attention to the development of their airborne capabilities. Extensive reequipment of the Soviet airborne forces has given them increased mobility and firepower. Ground assault tactics also have changed. Once landed, airborne units can operate as motorized rifle units. Soviet air transport capabilities have also been greatly improved.

This modernization program is based on the Soviet principles of mobility, surprise, and combat activeness. The Soviets view their airborne forces as a means to carry the battle into the depths of the enemy's position. They believe that airborne forces can and must be used widely on the modern battlefield.

The Soviets have long recognized the value of an airborne force. Soviet military planners, such as General Tukhachevsky, foresaw the value of troops who could be deployed by air as early as the 1920s. On August 2, 1930—the official "birthday" of the Soviet Airborne—the first airborne exercise involving 12 men was conducted. Within 6 years, the Soviets were fielding independent airborne brigades which included artillery, armor, antitank, reconnaissance, and air transport submits. By the beginning of World War II, the Soviets had 15 independent airborne brigades.

The Soviets' use of their airborne troops during World War II was severely restricted for lack of aviation assets. Nevertheless, more than 50 Soviet airborne operations were conducted during the war. Most of these operations were small in scale. The large-scale operations that were conducted were marked by poor planning and execution. Questions of theory and execution concerned Soviet military planners for the next 10 years. Attention was centered on the problem of linkup between airborne units operating in rear areas and advancing ground force units.

In an effort to find solutions to the problems of employment, they switched control of the airborne forces from one command organization to another and increased the available firepower. In 1946, command of the air borne was switched from the Air Forces to the Ministry of Defense, in 1956 to the Soviet Ground Forces, and finally in 1946, back to the Ministry of Defense. The principal weapons added to the airborne inventory during the first 20 postwar years were the ASU-57 self-propelled assault gun (1955) and the ASU-85 self-propelled assault gun (1960).

However, it was not until the 1960s that Soviet military began to solve the problems of force linkup.

Solutions resulted primarily from the Soviet decision to deploy nonstrategic nuclear weapons. Nuclear strikes would permit large ground force formations to move rapidly into the enemy's depth. Today, the Soviets' huge buildup of conventional weapons has also made possible a massive conventional air, missile, and artillery strike to make linkup easier in a non-nuclear war.

The resolution of the linkup problem resulted in a major program to reequip airborne units. The 120-mm mortar, the 122-mm howitzer, modern antitank and air defense weapons, rocket launchers, and the airborne amphibious infantry combat vehicle (*BMD*) were added to equipment inventories. The BMD is of particular importance. With its deployment in the 1970s, airborne units made significant gains in mobility and firepower. Today airborne units can conduct a broad range of combat missions to include many normally associated with motorized rifle or light armor units.

The present Soviet airborne force is formidable. It can be delivered to great distances. It is highly mobile, and can assault a prepared position or a well-armed enemy force. It is also an excellent force to use for power projection.

DOCTRINE

Soviet military doctrine calls for using airborne forces in both conventional and nuclear environments. Airborne units are an integral part of many operations at army and front levels. Aerial envelopment of the enemy has become an important maneuver in modern offensive operations. The primary theater warfare role of airborne units is to support the rapid advance of a large combined arms force deep into the enemy's operational or operational-strategic depth. Airborne units may be used in conjunction with an operational maneuver group (OMG) during offensive operations. The OMG is a combined arms formation employed in army-and front-level offensive operations to raid deep into the enemy's rear area. The Soviets conducted their military exercise ZAPAD-81 to test "new concepts of military science and art." During these exercises, airborne units were used extensively in support of an operational maneuver group.

The Soviets also use airborne forces as a means of projecting power. This was demonstrated by their invasions of Czechoslovakia in 1968 and Afghanistan in 1979. In both instances, a major portion of the Soviet invasion force consisted of airborne units. Airborne

troops are well suited for such roles. They train for operations in a variety of geographical environments. They are specially trained to establish, defend and expand an airhead. Their equipment is all air transportable. Airborne troops also have high political reliability.

To allow flexibility in employment, during wartime Soviet airborne forces will be directly subordinate to the Supreme High Command, with operational control exercised by the Soviet General Staff. Some airborne units would be allocated to Soviet theaters of military operations (TVDs) for strategic operations. Also, units would be allocated temporarily to Soviet fronts and combined arms and tank armies for specific operational depth missions. Other airborne units would be retained under the control of the Soviet Supreme High Command for contingencies.

The present locations of four Soviet airborne divisions generally correspond to Soviet wartime European and Near Eastern TVDs. A fifth division is stationed in the vicinity of Moscow and a sixth division serves as a training division. Additionally, an airborne division is operating in Afghanistan.

Soviet military planners consider airborne units to be an extremely valuable resource to be used judiciously. Use of airborne forces in an operation depends upon whether that would enhance the likelihood of surprise, deep penetration, and rapid exploitation. These criteria, together with the achievement of at least temporary local air superiority and the availability of airborne and airlift assets, constitute the main elements in a Soviet planner's decision to conduct an airborne operation.

MISSIONS

The Soviets categorize airborne missions based on the depth and importance of the objective and the size of forces involved. There are four categories of missions:

- Strategic.
- Operational.
- Tactical.
- Special.

Strategic

Strategic missions are established in wartime by the Soviet Supreme High Command and controlled by the General Staff. The outcome of a strategic mission is expected to have significant impact on a war or campaign. The use of airborne forces in a power projection role is also a strategic mission.

Strategic missions are conducted against deep targets by an airborne division or regiment. Forces from other arms and services will most likely be involved. Linkup with advancing ground forces may not be achieved for several days. Because of the scope and depth of a strategic mission, substantial air combat and transport is required. Supplies may be air-dropped or airlifted to troops on the ground.

Objectives of strategic missions could be national capitals or other administrative-political centers, industrial or economic centers, ports or maritime straits or air fields. Strategic missions also may be undertaken to establish a new theater of operations to neutralize one member of an enemy coalition.

Operational

Operational missions are controlled by fronts and armies. An airborne battalion, regiment, or division conducts these missions in conjunction with front or army operations. Airborne units and aviation assets are allocated to the front or army from the TVD or Supreme High Command. Linkup with advancing ground forces would be expected within several days or less. Operational mission objectives include:

- Enemy tactical nuclear weapons and delivery means
- Headquarters or command posts.
- Logistic facilities.
- Communications facilities.
- Airfields.
- Ports.
- Bridges and other water or gap crossing sites
- Mountain passes.

Operational missions also may be undertaken to block or to neutralize enemy reserves, or to block a withdrawing enemy.

Tactical

Tactical missions are controlled at division level. An airdrop of airborne troops may be used in a tactical mission, but a heliborne assault is preferred. A heliborne force normally is comprised of troops from a motorized rifle battalion of the division. However, airborne troops allocated from front or army may be used on rare occasions. Either a reinforced company or a battalion conducts tactical missions.

Tactical objectives are:

- Nuclear weapons and delivery means.
- Command posts.
- Logistic bases.
- Communication sites.

- Airfields.
- Key terrain such as high ground, bridges, gap crossings, road junctions, or passes.

Tactical missions also may be undertaken to block neutralize enemy reserves, to block a withdrawing enemy, or to attack enemy forces from the rear or flank.

Special

Special missions, or unconventional warfare (UW) missions, are probably established by the Soviet Supreme High Command and controlled by front and army commanders. Company or smaller size units conduct such missions. Special (UW) missions include:

- Reconnaissance.
- Neutralization of nuclear weapons and delivery means.
- Sabotage.
- Deception.
- Creation of panic in enemy rear.

Not all airborne units are designated and trained to carry out UW missions. Furthermore, not all UW missions are carried out by airborne units. The KGB, the Main Intelligence Directorate (*GRU*) of the Soviet armed forces, the ground forces, and the naval forces all have "special purpose" troops trained to carry out UW missions. (UW is discussed in Chapter 5.)

ORGANIZATION AND EQUIPMENT

The modernization program has transformed Soviet airborne divisions into mechanized infantry forces capable of seizing defended objectives and of attacking well-around enemy forces deep in the enemy rear. All combat equipment of an airborne division is air-droppable. The BMD is responsible for the greatest improvement in airborne combat capability. The BMD is an air-droppable, amphibious assault vehicle with armament similar to that of the HMY found in motorized rifle units. However, some older equipment, such as the ASU-57 assault gun and SD-44 antitank field gun, may still be found in some airborne units.

Airborne Units

The Soviets perceive enemy tanks and aircraft to be the two major threats to airborne units after landing. Accordingly, all airborne units contain numerous antitank and air defense weapons. The exceptional mobility and firepower of Soviet airborne units make them a formidable threat to an enemy's rear.

The Airborne Division. Each airborne division has three BMD-equipped airborne regiments. Division-level support elements include an artillery regiment, an air defense battalion, an assault gun battalion, an engineer battalion, a signal battalion, a transportation and maintenance battalion, a parachute rigging and resupply battalion, a medical battalion, a chemical defense company, and a reconnaissance company.

The Airborne Regiment. Each airborne regiment consists of three BMD-equipped airborne battalions, a mortar battery, an antiaircraft battery, and an antitank battery. Regimental support elements include an engineer company, a signal company, a transport and maintenance company, a parachute rigging and resupply company, a medical platoon, and a chemical defense platoon, and a supply and service platoon.

The Airborne Battalion. Each airborne battalion has three airborne companies. Equipping airborne companies with BMDs has eliminated the need for a battalion-level antitank battery. Furthermore, the wide distribution of man-portable, surface-to-air missiles has eliminated the need for a battalion air defense section. The airborne battalion is designed to provide command, control, and limited communication, supply, and medical support.

The Airborne Company. The airborne company consists of three platoons of BMDs. There are three BMDs in each platoon (one per squad). Besides the heavily-armed BMD, basic weapons of the airborne company include modern assault rifles, light machine guns, automatic grenade launchers, ATGMs, and numerous RPGs and shoulder-fired surface-to-air missiles. (For more information on organization and equipment, see FM 100-2-3.)

Air Delivery Capabilities

The Soviet Air Forces Military Transport Aviation (VTA) provides airlift service for Soviet airborne units and air assault brigades. The VTA has a fleet of over 600 medium- and long-range cargo transport planes assigned full-time use. This fleet includes about 370 AN-12/CUBs (similar to the US C-130/Hercules), over 170 IL-76/CANDIDs (similar to the US C-141/Starlifter), and over 50 AN-22/COCKs (similar to the USC-5A).

The older, medium-range AN-12 is the main stay of the VTA. This four-engine turbo-prop aircraft can airlift 90 troops or can drop 60 paratroopers from two exits. It can carry up to 20 metric tons of cargo, but some

large items such as engineer equipment will not fit in its cargo area. Each AN-12 can carry two BMDs. Transporting a BMD-equipped airborne regiment requires 90 to 115 AN-12s. The AN-12 can operate on unimproved runways. Its range with maximum payload is 1400 kilometers.

The AN-12 aircraft are being replaced by IL-76 long-range, four-engine jet transports. The IL-76 can carry 120 paratroopers who can jump from four exits, one exit on each side and two exits in the rear. The IL-76, with a cargo capacity of 40 metric tons, can carry all combat equipment normally assigned to airborne forces. Each IL-76 can carry three BMDs. Transporting a BMD equipped airborne regiment requires 50 to 65 IL-76s. The IL-76 can operate from unimproved runways. Its range with maximum payload is 5300 kilometers.

The AN-22 is a long-range, turbo-prop, heavy transport aircraft used mainly for airlandings, as opposed to airdrops. The AN-22 can carry 175 troops or 80 metric tons of cargo, to a range of 4200 kilometers. Each AN-22 can carry four BMDs. This aircraft is used mainly to transport large items such as self-propelled artillery, medium tanks, surface-to-air missile (SAM) launchers, or engineer equipment. It is well suited for strategic operations.

Most VTA aircraft are based in the western USSR. Some AN-12 units are based along the southern and far eastern borders of the Soviet Union. The concentration of aircraft in the western USSR places the main VTA assets near the airborne divisions they would support, as well as positions the force opposite NATO. Nevertheless, the VTA is capable of quickly concentrating its aircraft to support an operation anywhere along the Soviet borders.

During times of military emergency, aircraft of Soviet civil aviation, Aero flot can augment VTA capabilities. The civil fleet is equipped with about 1,100 medium- and long-range passenger transports, about 200 AN-12s and IL-76s, and several thousand short-range transports and helicopters. Aero flot aircraft could be used extensively for the airlanding of troops once airheads are established.

TRAINING

Soviet airborne troops are among the best-trained soldiers in the Soviet armed forces. The training that they receive is physically rigorous and mentally demanding. It is conducted under conditions simulating actual combat, including extensive NBC training. Airborne training integrates special airborne techniques with basic motorized rifle tactics.

The personnel assigned to airborne units enhance the quality of training in those units. Airborne personnel are carefully selected. Most of them are two-year conscripts who are put through a rigorous screening process which emphasizes a high level of physical conditioning, education and training, and political reliability.

Because parachute jumping is a major sport in the Soviet Union, many new conscripts are already experienced parachutists at the time of induction. Pre-induction parachute training is available through sports clubs and premilitary school programs conducted throughout the Soviet Union by the Voluntary Society for Cooperation with the Army, Aviation, and Navy (DOSAAF). Most inductees selected for service in the airborne forces are sent directly to the regular airborne divisions.

The majority of Soviet airborne officers are graduates of the Ryazan Higher Airborne Command School near Moscow. Junior officers are also provided by other higher command (four-year) schools, higher technical (three-year) schools, and civilian universities with reserve officer commissioning programs.

Commissioned graduates of the Ryazan Higher Airborne Command School usually spend their entire service career in the airborne forces. Active duty service begins in September or October following their summer graduation and commissioning.

Like warrant officers throughout the Soviet armed forces, warrant officers in the airborne forces are selected and sent to warrant officer training schools after being trained and having served as noncommissioned officers. Warrant officers serve as platoon leaders; company technicians, or company first sergeants.

Virtually all airborne noncommissioned officers began their service as two-year conscripts who demonstrated high motivation and political reliability. Many are selected for noncommissioned officer training by the district military registration office at the time of induction. They are then assigned directly to the airborne training division for at least 6 months of specialized training. Upon completion of this training, they are awarded an NCO rank and are assigned to one of the regular airborne divisions.

All enlisted conscripts in airborne units (like almost all Soviet youths) have undergone at least 140 hours of DOSAAF-sponsored premilitary training either during their last 2 years of formal schooling, or at their jobs. Most have undergone DOSAAF premilitary parachute training, thus reducing the training that conscripts need. Conscripts receive 4 weeks of basic training after which they receive additional instruction

in the use of weapons and military equipment, parachuting techniques, equipment rigging for airdrops, equipment derigging after airdrops, aircraft loading techniques, and so on.

CONDUCT OF AIRBORNE OPERATIONS

A Soviet decision to use the airborne forces is made after careful consideration. Many valuable assets are used in an airborne operation. The Soviets will not place these assets in jeopardy unless they believe that the mission has a reasonable chance of success. If other units are considered capable of fulfilling a given mission, they would be used instead of airborne units.

The success of an airborne operation depends upon air superiority, even if achieved only temporarily. Also essential is a favorable combat force ratio in the landing zones and objective area. The more powerful the enemy force in the projected operations area, the less likely the Soviets will be to conduct an airborne assault.

The Soviets intend to employ airborne forces in support of an army or front operation. The commander whose operations are to be supported establishes the airborne units' objectives and time of deployment. Control is decentralized to insure that the airborne objectives support the overall mission of the army or front commander.

Airborne assaults in support of army or front operations can be conducted at distances of up to 500 km from the FEBA. Many factors can affect the decision of how far behind enemy lines an airborne force can be inserted: the size of the force, the potential for reinforcement of the force, the anticipated enemy resistance, the rate of advance of friendly forces designated for linkup, etc.

The size of an airborne force used to support an army or front operation could be up to a division in strength. A reinforced regiment would be the most common-sized force used to accomplish most operational missions.

Planning and Preparation

An airborne operation requires extensive coordination between the control headquarters, and the airborne force, supporting aviation, and ground maneuver forces.

Planning considerations for Soviet airborne operations include: the mission, troops and support available, terrain, the depth of the operation, flight routes, air superiority, drop zones, surprise, security, and the enemy situation.

Intelligence information for an airborne operation is obtained by aerial reconnaissance, clandestine agents, sympathizers, maps, SIGINT, long-range patrols, or air-dropped reconnaissance teams. Of major concern is the enemy armor, artillery, and air threat. Reconnaissance activities also may be performed outside the projected objective area, as a deception measure.

A typical drop zone (DZ) is 3 kilometers by 4 kilometers. A regiment normally is allocated one or two DZs. If two DZs are used, battalion integrity will be maintained. A division uses four to six DZs. Alternate zones are designated for emergency use. Follow-on forces normally are dropped into the zones used by the initial assault wave.

Principles and Preparation

PRINCIPLES OF AIRBORNE OPERATIONS

- Surprise is a principal advantage. Extensive security measures are used in all phases of the operation to prevent early detection and to minimize enemy reaction time. Night airborne assaults are a primary means of achieving surprise.
- Landings are made in undefended areas or in areas where enemy defenses have been effectively suppressed.
- There must be effective air cover for the en route formation, and enemy ground air defense weapons along the flight route must be suppressed.
- Airborne assaults are given fire support by air strikes, missile strikes, and the artillery accompanying advancing ground forces as it comes within range.

PREPARATION FOR AN AIRBORNE ASSAULT

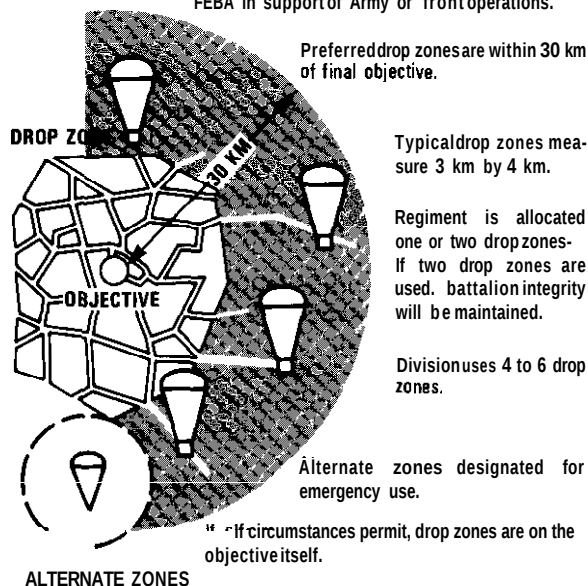
- Determination of the composition, strength, and capabilities of the enemy forces in the drop zone area (or those near enough to interfere with the landing operations and subsequent attack of objective).
- Determination of the nature of the terrain and condition of the road network.
- Location of natural and man-made obstacles that would interfere with airdrop of men and equipment.
- Selection of suitable primary and alternate drop zones.

Drop zones are as close to objectives as possible. The Soviets prefer that DZs be within 30 kilometers of the final objective. If circumstances permit, drop zones are on the objective itself,

The first element is a security element and is responsible for eliminating enemy resistance in the DZ. The Soviets try to complete the operation in one flight. However, if more than one flight is used, the first assault wave will contain forward command posts and crew-served air defense and antitank weapons, as well as maneuver units. The second wave will consist primarily of support elements.

Airborne Assault

Assaults can be conducted up to 500 km from the FEBA in support of Army or front operations.



Flight routes are chosen to minimize flight time to the drop zone. They also are planned to minimize the threat of aerial intercept and ground air defense.

Airborne unit marshaling areas are dispersed to prevent detection of an imminent operation and to reduce vulnerability to nuclear strikes. Conversely, marshaling areas must be close enough to departure airfields to make loading on aircraft easier. Normally, no more than a company can be expected in any one area.

Airborne troops scheduled for an operation are strictly segregated from the surrounding population. Units receive their missions in the marshaling areas. Having received their missions, unit commanders organize their units for loading on aircraft.

Loading is accomplished so that lead aircraft over a drop zone carry reconnaissance and security troops to secure the DZ. The security force is armed to defend against enemy air and armor attack. Main assault forces are loaded so that platoons, companies, and battalions land with as much unit integrity as possible.

For security reasons, airdrops are planned to take place at night, whenever possible. Units normally move to departure areas after nightfall. Radio silence is observed in marshaling areas and while en route to and at departure airfields.

Normally, more than one airfield will be used if more than one regiment is involved in an operation. Frontal aviation and front and army air defense weapons may provide air defense for both the marshaling and departure areas. In an emergency, close-in air defense could be provided by the airborne unit's weapons.

As a minimum, aviation, rockets and missiles, ground forces incursions, unconventional warfare, or naval fire support must gain local air superiority for the operation. Recognizing that local air superiority may be achieved for only a short period of time, Soviets prefer to accomplish the airdrop in one flight.

Air Movement

During the flight to the drop zone (DZ) or landing zone (LZ), aircraft fly in a formation that insures the proper jump sequence. Commanders and their chiefs of staff at battalion level and above are in separate aircraft to insure that a unit's entire command structure would not be lost if one plane were shot down.

The Soviets consider the air movement phase of an airborne operation to be its most vulnerable phase. They emphasize the necessity for creating a threat-free flight corridor from the departure area to the DZ or LZ. All along the flight path, fire support assets are targeted against enemy air defenses. Fighters and fighter-bombers escort transport aircraft to protect them from enemy fighters and ground fires. Protection of the air movement phase will be carefully coordinated.

Passive defense measures taken during the air movement phase include conducting movement during hours of darkness, using more than one flight route, maintaining radio silence, and flying at low altitudes. The Soviets also may use electronic warfare measures during air movement.

Airdrops

The Soviets attempt to complete their airdrops before dawn. To simplify the airdrop, the Soviets

probably employ only one type of aircraft for each DZ.

The Soviets normally conduct combat airdrops at an altitude of 150 to 300 meters. They emphasize the necessity to drop at low altitude to minimize the amount of time individuals are in the air. Low altitude drops also increase the likelihood that a unit's personnel and equipment will land close together. During some training exercises, the Soviets have conducted personnel drops as low as 100 meters, but there is no indication that such low altitudes are standard. The Soviets also have used steerable parachutes in an effort to increase unit integrity during airdrops.

The first element to be dropped is a small reconnaissance and security force. The main assault force is dropped at least 15 minutes later. The BMDs and crew-served weapons precede their respective personnel during the airdrop.

The Soviets have several methods for dropping cargo by parachute. Equipment weighing less than 30 kilograms (66 pounds) is dropped in padded containers. Equipment weighing up to 1,000 kilograms (2,200 pounds) is secured to standard cargo platforms. BMDs, motor vehicles, self-propelled guns, and other heavy items may be secured to special shock-absorbing platforms and dropped by a multi-parachute system. The Soviets also use nonshock-absorbing platforms with a retro-rocket system, used extensively to system. The retro-rocket system, used extensively to drop BMDs, is supposed to allow its cargo to descend five to six times faster than the multi-parachute system. Two ground probes, mounted on diagonal corners of the cargo platform, electrically fire the retro-rocket system's explosive charge. The explosive charge detonates when the sensors touch the ground and close the electrical circuit.

Drop Zone Procedures

The reconnaissance and security force's immediate mission is to secure the DZ before the main body lands. This force, which could be up to a company for each drop zone used in a regimental airdrop, takes up defensive positions around the DZ's perimeter. Of special concern are the main enemy avenues of approach into the DZ. The force also establishes listening and observation posts beyond the DZ to provide early warning of an approaching enemy. Antitank and air defense weapons are integrated into the perimeter defense.

If the main body is air-dropped during daylight hours, personnel move directly to their predesignated attack positions, but if the drop zone is not on the objective, personnel assemble in battalion assembly

areas. However, if the airdrop is conducted at night, personnel assemble before occupying predesignated attack positions. If the drop zone is not on the objective, personnel dropped during the hours of darkness assemble as companies and move to battalion assembly areas.

If the DZ is under strong enemy attack, personnel assemble and move immediately to the DZ perimeter to establish defensive positions. Personnel use any available BMD to reinforce defensive positions, and do not sort out the BMDs until after the enemy attack has been repelled.

If the DZ is not on the objective and battalions assemble first, they try to avoid combat with enemy units. They attempt to evade enemy ground forces and hide from an air threat. If required to actively defend against an air attack, at least one entire platoon per company or one company per battalion is assigned the mission.

The Soviets consider an enemy air attack to be a serious threat to a landed airborne force. Besides the regiment's crew-served and shoulder-fired air defense weapons, the Soviets would use small arms fire, and even RPGs, ATGMs, and the BMD's main gun against air attack.

When an enemy threat against the DZ has been successfully neutralized or suppressed units move to battalion assembly areas located either at the DZ boundary or a few hundred meters outside the DZ.

If a follow-on air landing is planned, the regiment's initial assault force leaves a rear detachment at the DZ to provide security and to assist in the landing of the follow-on force.

The airdrop and reorganization phase at the DZ is considered to be the second-most vulnerable period in an airborne operation following the air movement phase. All actions taken at the DZ are to clear the DZ before an enemy force arrives.

Movement to the Objective

A regimental-sized airborne operation uses three predesignated battalion assembly areas on or near the boundary of the DZ. Movement to the final objective most often is made in battalion march columns along parallel routes. Battalions may be assigned separate final objectives. Companies and platoons are often assigned intermediate missions (raids) to be accomplished during their movement to the final objective.

Speed and security are the primary concerns during movement to the objective. Battalions move in a tactical march formation as long as possible. This

formation allows the battalion to move swiftly and still maintain security. A unit in tactical march formation establishes forward, flank, and rear security elements. A battalion advance guard could be up to a reinforced company in strength. In the main body of any march formation, attached artillery elements are located at the head of the column to allow immediate deployment. Antitank weapons are located behind the artillery followed by any attached crew-served anti-aircraft weapons.

The airborne force tries to maintain movement to the objective even if an enemy force is encountered during the march. If possible, they evade enemy forces during the march. If not, they attack the enemy force with the forward security element of the advance guard, but not necessarily with the main body. The decision to deploy the main body depends on the size of the enemy force. If the force is too large to be handled successfully by the advance guard but small enough to be destroyed quickly by the main body, then the commander probably will use the main body to attack the enemy. However, if the enemy force is so large that the commander believes the main body would become decisively engaged in an attack, then he would attempt to avoid contact and lead the main body on an alternate route to the objective. In this case, the advance guard would be let in contact with the enemy.

If the airborne force is moving at night, established road networks are used to reach the objective quickly before dawn. If movement is during the day, the unit moves cross-country using terrain features to provide concealment whenever possible. During movement, the airborne force keeps the radios in the "receive only" mode until contact is made with the enemy. In the "receive only" mode, only the commander transmits messages.

During the march, the unit maintains 360-degree aerial surveillance. BMD and antiaircraft (AA) gun crews are given an air sector to keep under constant surveillance. Visual surveillance is required because there is no air defense radar in Soviet airborne units. If a unit comes under a strong air attack, the commander deploys the AA guns. If the air attack is not repulsed immediately, then the AA element may be left in place to provide coverage while the main body continues its movement to the objective.

Reconnaissance missions during the ground movement phase are extremely important, since the information received before departure may be limited or perishable. For information on the routes of march and enemy forces in the area, the airborne commander sends out his reconnaissance teams. However, the only

dedicated reconnaissance unit assigned to an airborne force is the reconnaissance company at division level. Therefore, an airborne battalion deploys one of its organic platoons as a reconnaissance patrol. This platoon may have engineer or chemical defense elements attached.

The reconnaissance patrol investigates the trafficability of routes, and possible ambush and river crossing sites. In the objective area, the reconnaissance patrol tries to locate good battalion assembly areas. The reconnaissance patrol also attempts to gain information on enemy security outposts, fortifications, tank and antitank weapons disposition, and reserves.

In general, the reconnaissance element moves under cover of darkness using the BMD's onboard navigation equipment to assist its movement. It may operate up to 15 kilometers in front of the main body. Reconnaissance patrols seek to avoid combat with the enemy. If attacked by an enemy force, they attempt to break contact and to continue to move forward.

Companies or platoons that have accomplished intermediate missions (raids), march to battalion assembly areas near their battalion's final objective. There they join their battalions in the assault.

The Attack

Time spent in battalion assembly areas is kept to a minimum. Battalion commanders confirm their unit strength after the road march and raids, and receive enemy situation reports from their reconnaissance patrols. Because airborne operations are conducted within enemy territory and require speed and surprise, Soviet commanders plan to conduct operations without full personal reconnaissance. After commanders have been updated on the situation, they refine the missions of their subordinate and attached units. Plans of attack almost always involve an envelopment or flank attack.

Offensive tactics of airborne forces are similar to those of Soviet motorized rifle forces. Unlike raids, the attack at the final objective usually is conducted to overwhelm the enemy and to gain control of an enemy-held area or facility. Final objectives most common in Soviet airborne exercises are river crossing sites, airfields, and mountain passes.

Before the attack, supporting units are deployed to provide maximum support. Attached artillery supports the airborne unit as it closes in on an objective. Engineer elements are positioned to move in quickly and sweep the area of obstacles. Air defense sections are positioned where they can engage attacking enemy aircraft or helicopters.

Battalions normally depart assembly areas in pre-battle formation. This consists of three companies arrayed in a line, wedge, or echelon. Company prebattle formation consists of three platoon columns with 150 to 200 meters between columns.

Attack formation normally is assumed within 1000 meters of the objective, but subunits try to get as close as possible before deploying. About 200 meters is the minimum distance for deployment into attack formation.

Platoons in a company attack formation deploy with a 50-meter interval between squad BMDs, and a 50- to 100-meter interval between platoons. The maximum attack frontage for an airborne company would be 500 meters.

Before receiving the signal to attack, BMD radios are in the "receive only" mode. Only the company commander and platoon leader can transmit messages. Once the attack begins, all radios can transmit and receive messages.

If the enemy is estimated to be weak-especially in antitank weapons-the airborne force may attack in one echelon with personnel mounted in their BMDs. However, if the enemy is considered to be strong, the airborne force most likely would attack in two echelons with personnel dismounted. Dismounted personnel advance between the BMDs and could either precede or follow them. The BMDs fire from short halts.

In a night attack, the company commander gives the platoon leaders an azimuth upon which to advance to the objective. The azimuth will be set on the directional gyrocompass onboard the BMDs to guide each platoon on its direction of attack.

Seizure of a river crossing site typically takes place in the same manner. However, the commander adjusts his plans to account for the peculiarities of the mission. The reconnaissance patrol's mission is modified to include finding suitable crossing sites so that units can be deployed to seize key terrain on both sides of the river. Combat engineers also scout the river to determine its depth and width, speed of the current, river bottom characteristics, existence of floating obstacles and mines, riverbank composition and slope, and approaches on the river's far bank. Subunits also are designated to prevent the enemy's destruction of bridges or ferries during the attack.

An airfield probably would be seized using two directions of attack. During the attack, units remain mounted in BMDs as long as possible. In the attack plan, commanders designate units to seize the control tower, POL storage areas, and any radio beacon towers. In addition, designated units attack the enemy's main

and reserve security elements as well as any air defense crews situated around the airfield. The engineer attachment clears the airfield of enemy-emplaced mines. During the attack, the main force takes the control tower and destroys the airfield security force.

In securing a mountain pass, the airborne unit designates as its objective the key terrain surrounding the pass. Soviet commanders tailor their force size and composition to the size and availability of drop zones, as well as to the difficulty of movement on mountains. If the DZs are not located near the battalion or smaller-sized unit on each DZ in the mountains. They also expect more injuries due to the ruggedness of the terrain. In some areas, BMDs will not be used in the airborne operation. Also, the Soviets do not plan on using attached artillery in every mountain operation.

Drop zones may be closer to the objective and located on several sides of an objective to compensate for the decreased speed of movement in the mountains. If the DZs are not located near the objective, the Soviets plan to move only on roads to reach the objective area. Finally, the Soviets rely more on radio communications in the mountains even though radios are less reliable in such regions.

The Defense

Once a Soviet airborne regiment or battalion has seized an objective, its mission is to defend the objective until the arrival of Soviet forces advancing from the front line. In almost all cases, they use a 360-degree perimeter defense. Whether the defense is established in depth or with all units forward, depends upon the enemy threat and the terrain. If the commander puts maximum power forward, he maintains a small mobile reserve. For a regiment, this reserve would be no more than a company. A battalion defense would keep no more than a platoon-sized element in reserve.

Defensive positions are built on a series of subunit strong points. A company is assigned a strongpoint within a battalion defensive position. The company may establish a defense in depth or a defense with all platoons forward. The company commander designs the defensive position so that ground avenues of approach are heavily defended by antitank weapons. He places shoulder-fired air defense weapons forward of the perimeter. The air defense sections are located on high ground so that an enemy air threat can be challenged before it reaches the company's position, or in the case of helicopter gunships, while it is firing from a distance. The company commander places

obstacles and antitank weapons in intervals between platoons as well as between his company and adjacent companies.

A company's defense is built around a series of platoon strongpoints. These strongpoints are approximately 400 meters across. BMDs are placed 200 meters apart within each platoon position. For protection, they are placed in hull defilade on the reverse side of hill slopes. Company commanders designate both primary and alternate platoon defensive positions. In turn, platoon commanders designate both primary and alternate positions for their squads.

The company commander prepares a company fire plan that insures the entire company defensive area is covered by interlocking fires. Intervals between the company and flanking companies are also covered by fire. The plan includes primary and alternate azimuths of fire for the platoon's primary and alternate positions. In the fire plan, squads are numbered from 1 through 9 so that the company commander can control his unit's defensive fires down to squad level.

The company commander may specify on platoon to provide air defense coverage for the company. If platoon receives such a mission, it concentrates all of its weapons on an air threat when directed to do so by the company commander. This platoon effort supplements the air defense fires of the SAM section.

Upon receiving the primary azimuths of fire from the company commander, platoon commanders lay each BMD using the onboard directional gyrocompass. The platoon commander indicates terrain features to be used as the BMD's lateral limits. The BMDs are placed in hull defilade approximately 200 meters apart and 50 to 100 meters to the rear of squad personnel. Squad members prepare prone firing positions to make themselves less vulnerable to enemy or friendly fire. The platoon commander locates RPG antitank grenade launchers between the BMDs. The RPG's are also assigned sectors of fire.

During the defensive battle, enemy tanks are given target priority. The Soviets engage armor at maximum ranges with all available antitank weapons. The Soviets seek to avoid having a BMD engage a tank one-on one.

The individual Soviet soldier is trained to conduct "hand-to-hand combat" against tanks. Firing from prone positions, soldiers use automatic weapons fire to destroy an enemy tank's observation devices. When a tank comes within 8 to 10 meters, a soldier jumps up and throws a grenade at the tank. If the tank is damaged, he shoots the crew as they exit the vehicle.

Ambush sites may be created on primary avenues of approach approximately 5 kilometers from the main defensive perimeter. Platoon-sized ambushes may be employed in a role similar to that of a covering force.

The location of an ambush is chosen to facilitate attacking an enemy as it crosses a natural defile. The enemy route into the ambush is mined so that lead and rear elements of the enemy march formation are destroyed so as to block exits from the defile. Mine explosions are the signal to open fire. Lead tanks are the primary targets in the ambush.

The unit conducting an ambush avoids decisive engagement with the enemy. Once the commander has made the decision to withdraw, the unit moves to its previously prepared defensive position on the objective.

Linkup

Airborne units either await a linkup with friendly forces or fight their way back to friendly lines. To accomplish linkup, the airborne unit sends its reconnaissance element to meet advancing ground force units. The reconnaissance element provides information on the best approaches into the area, the security situation on the objective, and the enemy situation. Once linkup has been completed, operation control of the airborne unit returns to the front or TVD.

CHAPTER 3

HELIBORNE OPERATIONS

Heliborne operations have been a part of Soviet military doctrine since the 1960s. The US airmobile experience in Vietnam increased Soviet interest in the combat uses of the helicopter. Heliborne operations in Soviet ground force maneuvers increased during the 1970s. Such operations now are standard in military exercises. Since early 1980, Soviet forces in Afghanistan have been conducting heliborne operations in combat.

The Soviets appreciate the tactical advantage of heliborne operations—rapid maneuver of combat troops, unconstrained by obstacles on the ground. When compared to parachute drops as a means of inserting troops, heliborne operations require less training and can penetrate enemy air space at a low level. On the other hand, availability and capabilities of helicopters limit the size, scope, and frequency of heliborne operations.

DOCTRINE

Theoretically, by day or night, Soviet heliborne units are inserted in enemy territory, 50 kilometers or more forward of the line of contact. However, Soviet descriptions of practice operations imply that the assault force is usually of battalion size or smaller, is assigned an objective within range of Soviet divisional artillery (i.e., within about 15 kilometers of the line of contact), operates in daylight, and links up with an advancing friendly force within hours.

Battalions of motorized rifle regiments are trained for heliborne operations employing helicopters from army or front helicopter regiments.

MISSIONS

Typical missions for a heliborne operation are neutralization of enemy command, control, and communications facilities; seizure of critical terrain such as an opposite shore of a river crossing site; pursuit of a withdrawing enemy; attack enemy defense positions from the rear; neutralization or disruption of enemy combat support or combat service support elements; or deception. The Soviets expect the heliborne force to be threatened by superior enemy firepower and mobility after landing in the enemy rear. Therefore, the assault force generally requires external fire support and early linkup if it is to be recovered.

A typical heliborne mission is the seizure of a bridgehead in support of a river crossing. Other possible

objectives are mountain passes, beach exits, desert oases, crossroads, or other features whose denial to the enemy will make the overall maneuver plan easier. Heliborne units also can block enemy attempts to break out of an encirclement or to reinforce a meeting engagement.

Heliborne units also can be inserted into the enemy rear area for reconnaissance missions. Small reconnaissance units may be inserted with light armored vehicles. In the Soviet rear area, Heliborne units can perform rear area security missions. They can screen, delay, or defend against an enemy approach to a vulnerable flank.

Ambushes, raids, sabotage, and deception operations are examples of other missions suited to heliborne operations. Heliborne units also can lay and clear mines in the enemy rear. In World War II during the forcing of the enemy Dnieper river defenses, Soviet forces inserted company-sized units by parachute into German division rear areas on the far side of the river. On the Dnieper, the enemy was hard-pressed from the front and was unable to provide adequate rear area security. The result was that enemy combat support activities were disrupted at small cost to the Soviets. On other occasions, a disproportionately large enemy force was diverted from the front to deal with a rear area threat. In comparable situations today, helicopters could be used to insert combat units into the enemy rear area rather than parachute drops. In support of deception operations, heliborne units can be used to represent larger formations in feints, demonstrations, and ruses.

ORGANIZATION

Motorized rifle battalions are tailored for heliborne operations and probably would be selected from a division's second echelon or combined arms reserve. The tailoring eliminates assets not mission-essential. The battalion antitank platoon may be augmented. A sapper company, an antiaircraft battery, and a battery of towed artillery may be attached. Rear service personnel may be attached to the force to deal with supply of ammunition, medical supplies and treatment, and any special problems for a given operation, such as supply of drinking water.

Some light armored or wheeled vehicles can be included in the force for use as missile carriers and reconnaissance vehicles. An Mi-6/HOOK heavy transport helicopter is required to lift most of these

vehicles. The number of Mj-6 sorties available will limit the number of vehicles. With all augmentations and deletions considered (particularly deletion of APCs and most other battalion vehicles), the battalion heliborne force could contain over 500 troops.

Transport helicopters from either the assault helicopter regiment or the transport helicopter regiment can be used for heliborne operations. HIND attack helicopters are capable of carrying some troops but are normally not used in that role.

TRAINING

Soviet motorized rifle troops require a minimum of one day's training in preparation for heliborne operations. Individual companies require 2 to 4 hours to practice loading and unloading procedures. Six or seven hours are required to rehearse the actions in the departure area before embarkation and those actions required after landing. Training stresses antitank tactics and other pertinent aspects of dismounted combat as well as set routines for troops in and around aircraft. Mockup helicopter fuselages may be used and certain individuals may receive additional specialized training in the tasks of loading and securing bulky items in the helicopter.

A battalion or company heliborne assault is a standard practice in field training exercises at division level and above. In 1978, Exercise **BEREZINA** included a heliborne operation that employed a mix of Mi-8/HIP and Mi-6/HOOK helicopters to land a motorized rifle battalion in the enemy's rear.

CONDUCT OF OPERATIONS

Planning Considerations

Heliborne operations in the offense exploit fleeting opportunities. In the defense, they counter threats which suddenly materialize. Heliborne planning has to be rapid, thorough, and flexible. Planning begins with the selection of the objective. The responsible commander designates the objectives, one or more helicopter landing zones at or near the objective, and a departure area for the force.

During the operations helicopters should spend only a minimum of time in any one place. They are particularly vulnerable when stationary either on the ground or hovering in the air. The pickup and landing of the assault force must be accomplished quickly, without confusion.

The lift capability of each helicopter is a variable depending on air density encountered during the

mission. The lift capability is degraded seriously as temperature or altitude increases.

Weapons, supplies, and key personnel are spread throughout the helicopter force so that the operation will not fail because of a few unlucky losses among the helicopters.

An assault unit once on the ground in the enemy rear area may be attacked from any direction by superior enemy forces. It is likely to require more external fire support than a motorized rifle unit of similar size in standard configuration. The ground force is in a tenuous situation concerning resupply. During heavy engagement at close quarters, the basic load of ammunition can be exhausted very quickly.

Command and Control

A division commander is the lowest ranking ground force officer likely to order a heliborne operation. Front or army commanders may order a heliborne operation drawing on the assets of a motorized rifle or airborne division. In any case, army and front will know of and approve the operation in advance.

The commander of the heliborne force will be the commander of the battalion, company or other units forming the basis for the assault force. The ground force commander is responsible for preparation and positioning the troops for loading. He shares with the aviation commander the decision to proceed with the landing, based on their assessment of the situation at the landing zone. After the landing is made, the ground force commander is solely responsible for conducting the operation.

While the ground force commander may be able to refine the scheme of maneuver, most of the decisions required for the operation as a whole will have been made by higher authority. The operations plan is followed as closely as possible.

Most heliborne operations require at least a squadron and possibly a regiment of transport helicopters. These units belong to either the army or front. The aviation commander's responsibilities include proper loading of troops and cargo in the pickup zone and navigation and tactics in the air. The ground and air commander for the operation normally ride in the same helicopter, while their respective deputies ride in another helicopter. Ground and air officers work out conflicts in the mission planning process by negotiation, with appeal to higher authority in case of disputes. Air liaison officers in ground units help the aviation commander to identify the best approach and departure routes, and coordinate the helicopter activity with ground force air defenses.

Communications

The ground force radio net interlocks with the aviation net. An airborne command post may be used to relay communications from the assault unit on the ground back to its parent unit. Minimal radio transmissions are a standard Soviet procedure. Prearranged code words keep transmissions short and uninformative to the enemy. Color coded signal flares and smoke are used.

Loading

The departure area is located approximately 20 kilometers behind the line of contact to avoid enemy artillery fire. The departure area is large enough to allow troop dispersal. It contains subareas for helicopter pickup, disposition of troops, and units preparing to embark. The departure area is located where it can be masked from enemy observation by protective features of the terrain, and by camouflage and dispersal. Units which cannot be completely hidden from enemy reconnaissance should appear as small reserve or second echelon units.

The pickup zone is located as close as possible to the disposition area to minimize delay and confusion en route to the helicopters. A unit may move from its disposition area to a short-term waiting area closer to the pickup zone. The waiting area also is camouflaged and allows for troop dispersal. It can be used to distribute special equipment and to receive specialist personnel attached to the force for the operation.

The force is prepared to load before the helicopters arrive. While waiting for the helicopters, the commander briefs his subordinates and joins the political deputy in exhorting the troops. The commander's final briefing includes recognition signals to be used between subunits and the plan for linking up with friendly forces. Staff officers responsible for communications and other services brief the force chief of staff. The chief of staff has prepared and coordinated a detailed list, approved by higher authority, of what will be loaded into each helicopter.

The helicopter crew, having prepared the aircraft in advance to receive its assigned load, supervises the loading process. For palletized cargo, the center of gravity is chalk-marked on the cabin floor. For bulky items such as artillery pieces, unnecessary obstructions are removed from the cabin of the helicopter. The helicopter crew provides the winches, hoists, ladders, ramps, chocks, lashing material, and any other items required for loading.

The ground forces provide the labor for loading cargo into the helicopters. Specialists of the rear services attached for the mission may be used. The

cargo is placed 10 to 15 meters from the expected position of the helicopter receiving door. Personnel to be loaded form a single column at a similar distance. The senior man present, normally a squad leader sergeant, identifies himself and the cargo to be loaded. He provides a written manifest showing the helicopter number and the cargo weight by item. Helicopters designated for the most time-consuming loading operations land first.

If the cargo consists of equipment or supplies, the helicopter commander checks the manifest and orders, "Begin loading." When he has inspected and approved the positioning of the cargo inside the aircraft, he orders, "Begin lashing." Personnel to be transported are marched into the aircraft and are checked for proper seating by the senior ground force representative and the helicopter crew. While in the helicopter, the ground force personnel follow the instructions of the helicopter commander.

Landing Zones

The heliborne force lands on its objective if possible. If not on the objective, the landing zone should be as close and as advantageously placed as possible, but outside direct fire range of a defended objective. There will be at least one alternate landing zone and possibly multiple landing zones for subunits of the force.

The heliborne force commander is limited in his ability to reconnoiter landing zones and routes to the objective. Usually he must depend on maps, aerial reconnaissance, and human sources such as prisoners or line crossers. The terrain in question is likely to be beyond reach of ground reconnaissance patrols. Too obvious an air reconnaissance jeopardizes the chance of surprise. Minutes before the landing, an armed helicopter or other aircraft performs a final reconnaissance of the landing site.

In selecting the landing zone, there are hazards to consider which may not be reflected on maps or aerial photography. The greatest danger is that the enemy, either through advance knowledge of the mission or by chance, will be in position to defeat the operation and will exploit his advantage fully. Another hazard may be undetected changes in the NBC situation in the landing zone and the objective. Loosely packed snow, sand, or dust driven by rotor wash can obstruct pilot vision. Snow can hide hazards such as boulders and crevasses in the landing zone. The firmness of the ground, on which the force artillery deployment may depend, can change rapidly with precipitation or temperature changes. In the tundra, thawing creates a bog on top of the permafrost where rock-hard soil

existed a short time before. If a shortage of suitable terrain for landing exists, troops can be unloaded by using rope ladders, by rappelling, or by simply jumping from a hovering helicopter.

While the operation as a whole may rely heavily on air and artillery support, the assault force primarily suppresses the enemy forces in the landing area. Helicopters at the landing zone cover the off-loading operation with antitank guided missiles, free flight rockets (both antipersonnel and antiarmor), and machine gun and small arms fire.

Troops leave the helicopter on order of the helicopter crew commander. Procedures are tightly regimented to get the troops and cargo away from the aircraft and away from the landing zone without delay.

The Objective

The objective normally is expressed in terms of terrain to be secured or an enemy unit to be neutralized. Ideally, it should be relatively small and lightly defended, and have easy access. For example, an enemy tactical missile unit may be neutralized by destroying

the launchers and guidance vehicles from ambush without attacking the enemy's garrison facility. The scheme of maneuver will be approved, if not dictated, by higher authority. Once the operation begins, the heliborne force commander may refine the scheme of maneuver if necessary but makes as few changes as possible. In exercises, the mission ends with the arrival of a friendly ground force. Examples suggest that the survival of the assault force may not be required for successful accomplishment for the mission.

While each phase of the operation is built on the success of the previous phase, the most critical moments occur in the movement from the landing zone to the objective. In many situations, everything is staked on the success of the initial assault on the objective, made before the enemy reacts to the presence of the heliborne force.

After seizing its objective, the assault force establishes a perimeter defense to await linkup. A motorized rifle battalion in heliborne assault operations cannot be self-sustaining. The planned time to linkup normally is 2 to 3 hours.

CHAPTER 4

AMPHIBIOUS OPERATIONS

DOCTRINE

Soviet military strategy currently recognizes the importance and complexity of amphibious operations. During the 1950s, the Soviets denied the military value of amphibious assaults because of the potential effect of nuclear weapons on an assault force. The Soviets re-evaluated their position in the early 1960s and re-activated the Soviet Naval Infantry in 1964, which now consists of approximately 12,000 men. It has the capability to conduct tactical landings with highly mobile forces, air cushion vehicles, and landing ships.

MISSIONS AND OPERATING FORCES

Amphibious Landings

The Soviets categorize amphibious landings depending on the scale of the landing. These categories are strategic, operational, tactical, and reconnaissance and sabotage landings. Secondary missions, such as coastal defense, may also be assigned.

Strategic Landings. Strategic landings support theater forces in opening up a new area of military operations. This landing would call for the employment of a multidivision force, with appropriate naval and air support. The Soviets have never conducted a strategic landing.

Operational Landings. Operational landings are made to assist ground or naval forces in a coastal region to surround and destroy enemy ground or naval units in that area. The Soviets call this a "maritime front." Landings of this scale might entail the landing of a naval infantry regiment as the first echelon. Other missions would include the seizure of major islands or a group of islands, naval bases, and other important coastal objectives. This is believed to be the primary role of the Soviet Naval Infantry today.

Tactical Landings. Tactical landings are conducted to strike at the rear area or flank of any enemy force along a coastline, or for seizing islands, naval bases, coastal airfields, ports, and other objectives on an enemy-held coastline. The naval infantry force employed could be a battalion or larger, operating independently or with ground force units.

Reconnaissance and Sabotage Landings. These landings are conducted for reconnaissance, for

inflicting loss or damage in enemy rear area facilities located near a coast, and for diversionary operations. The naval infantry force employed normally would be a battalion, company, or platoon.

Soviet Naval Infantry

The Soviet Naval Infantry can be expanded quickly in wartime by mobilizing trained reservists and reserve equipment. The Naval Infantry is organized into units which are subordinate operationally to fleet commanders. The organization of naval infantry units is similar to that of motorized rifle units. There are currently three naval infantry regiments and one division.

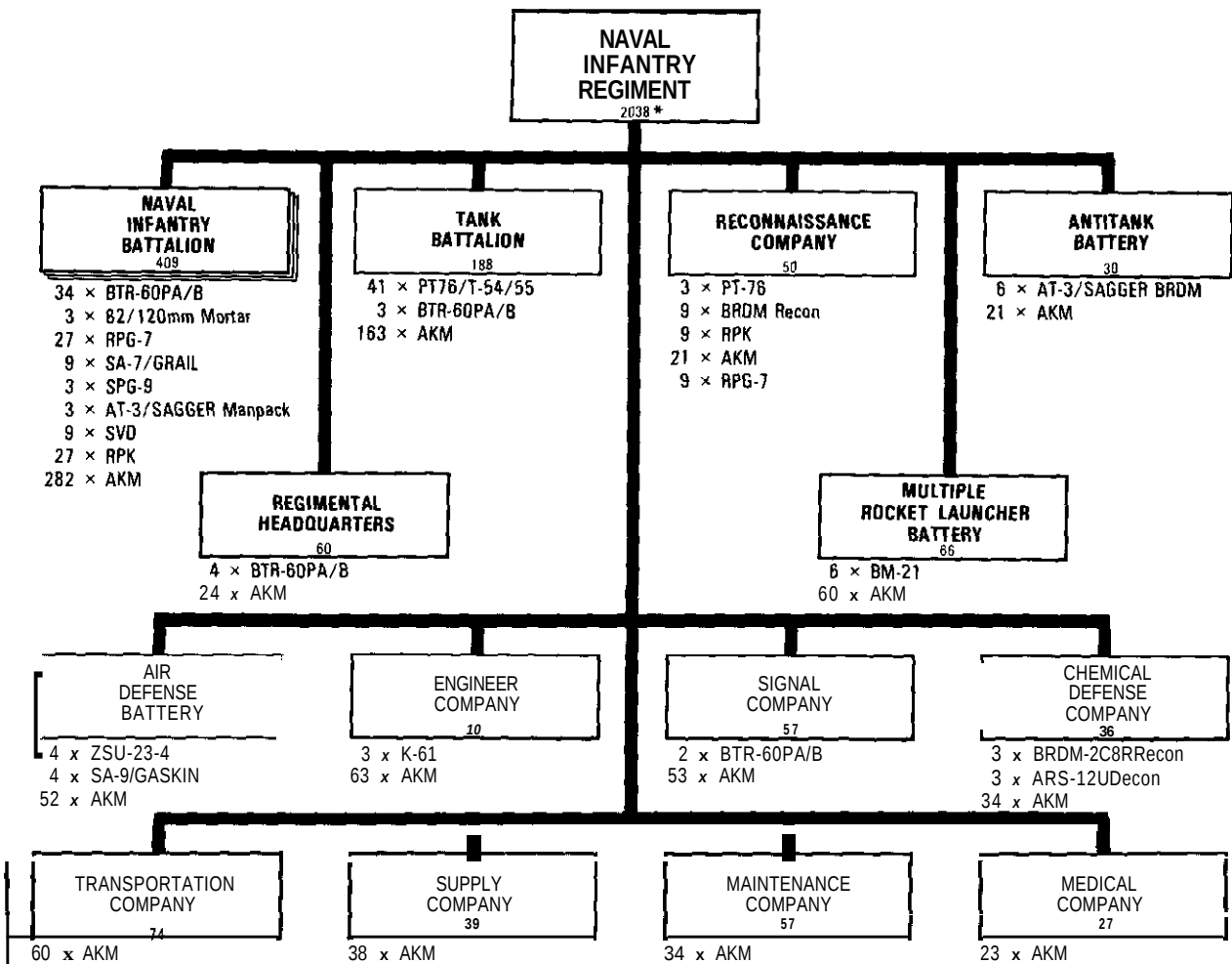
Naval Infantry

FLEET	UNIT
Northern	1 regiment
Baltic	1 regiment
Black Sea	1 regiment
Pacific Ocean	1 division

Naval Infantry Regiment. The naval infantry regiment consists of three naval infantry battalions, a tank battalion, and several specialized support companies. It has a strength of about 2,000 men. Its organization is similar to the motorized rifle regiment except that the tank battalion has a mix of medium tanks and PT-76 amphibious light tanks. The naval infantry regiment does not have an organic artillery battalion, but does have a multiple rocket launcher battery. It also receives artillery support from the naval gunfire ships of the amphibious task force.

Naval Infantry Battalion. The basic unit of the naval infantry regiment is the naval infantry battalion. The battalion is made up of three naval infantry companies, a mortar platoon, an antitank platoon, and supporting supply and maintenance, medical, and communications units. In all, the battalion numbers about 400 men. This unit, reinforced, constitutes the basic amphibious attack force in the assault landing—the battalion assault force (BAF).

Soviet Naval Infantry Regiment



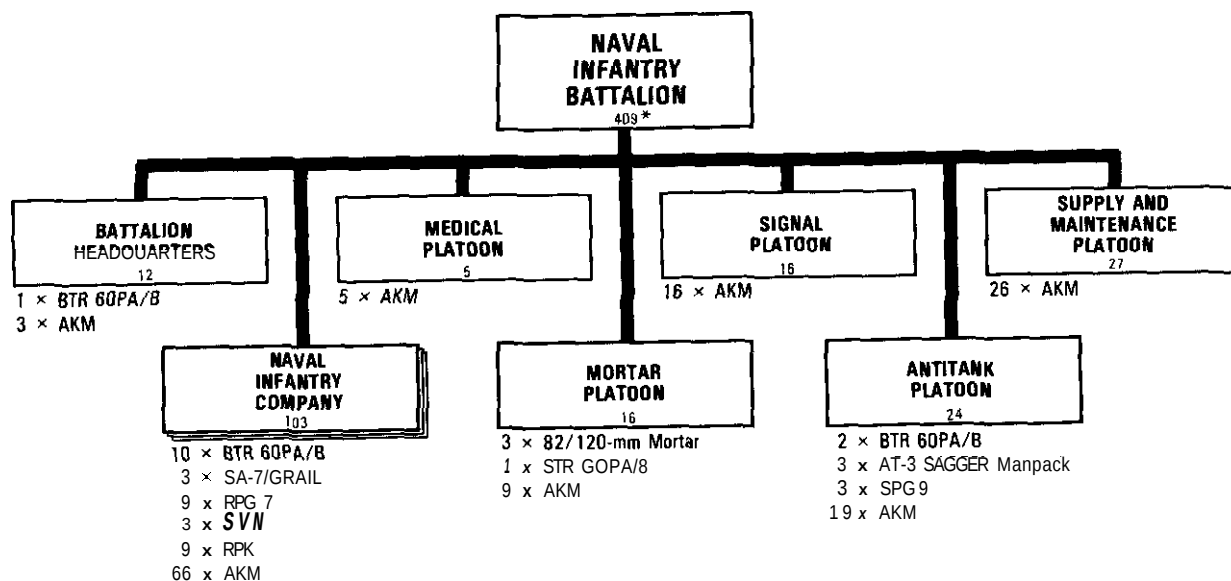
"Total Personnel (Approximate)

PRINCIPAL ITEMS OF EQUIPMENT

Equipment	Total	Equipment	Total
T-54/55 Medium Tank..	44	ARS-12UCBR Decontamination Vehicle..	3
PT-76 Amphibious Light Tank	44	82/120-mm Mortar	9
BTR-60PA/B Amphibious APC	111	RPG-7 Antitank Grenade Launcher.	90
BRDM Reconnaissance Vehicle	9	SA-7/GRAIL SAM Launcher	27
AT-3/SAGGER BROM ATGM Launcher.	6	SPG-9 73-mm Recoilless Antitank Gun	9
BRDM-2CBR Reconnaissance Vehicle	3	AT-3/SAGGER Manpack ATGM Set..	9
BM-21 122-mm Multiple Rocket Launcher..	6	RPK 7.62-mm Light Machine Gun.	90
ZSU-23-4 SP Quad23-mm AA Gun	4	AKM 7.62-mm Rifle	1521
SA-9/GASKIN SAM Launcher	4	SVD 7.62-mm Sniper Rifle	27
K-61 Tracked Amphibian.,	3		

NOTE: The AKM rifles and the RPK light machine gun have now been replaced by the new AK-74 and RPK-74 5.45-mm weapons.

Soviet Naval Infantry Battalion



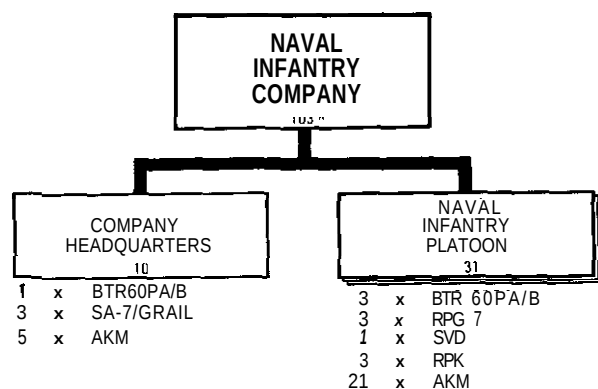
*Total Personnel (Approximate)

PRINCIPAL ITEMS OF EQUIPMENT

Equipment	Total	Equipment	Total
BTR 60PA/B Amphibious APC	34	SPG-9 73-mm Recoilless Antitank Gun	3
82/120-mm Mortar	3	SVD 7.62-mm Sniper Rifle	9
SA-7/GRAIL SAM Launcher	9	RPK 7.62-mm Light Machine Gun	27
RPG-7 Antitank Grenade Launcher.. ..	27	AKM 7.62-mm Rifle	282
AT-3/SAGGE Manpack ATGM Set.. ..	3		

NOTE: The AKM rifles and the RPK light machine gun have now been replaced by the new AK-74 and RPK-74 5.45-mm weapons.

Soviet Naval Infantry Company



*Total Personnel (Approximate)

PRINCIPAL ITEMS OF EQUIPMENT

Equipment	Total
BTR-60PA/B Amphibious APC	10
SA-7/GRAIL SAM Launcher	3
RPG-7 Antitank Grenade Launcher.. ..	9
SVD 7.62-mm Sniper Rifle	3
RPK 7.62-mm Light Machine Gun	9
AKM 7.62-mm Rifle	68

NOTE: The AKM rifles and the RPK light machine guns have now been replaced by the AK-74 and RPK-74 5.45-mm weapons.

Naval Infantry Company. The naval infantry company is made up of a small company headquarters and three naval infantry platoons. The company headquarters consists of the company commander, political officer, technical officer, first sergeant, messenger/clerk, medic, three SA-7 gunners, and the driver and gunner of their BTR-60 armored personnel carrier. Each platoon consists of three squads of ten men each. Each squad consists of the squad leader, a machine gunner, an RPG gunner, an assistant RPG gunner/rifleman, four riflemen, the APC machine gunner, and the APC driver.

Tank Battalion. The naval infantry tank battalion has a mix of PT-76 light amphibious tanks and medium tanks. Each of the tank companies has three platoons of four tanks each with the company commander's tank bringing the total to 13 tanks. While the medium tanks are not amphibious, they can disembark in shallow water as a follow-on landing force behind the PT-76 and BTR-60 first or second wave. In task organizing a landing force, one platoon of tanks normally supports a naval infantry company.

Reconnaissance Company. The reconnaissance company may be task organized to provide a platoon of at least one PT-76 and three BRDMs to the battalion assault force for the amphibious landing. The Soviets consider this platoon to be one of their amphibious assault advance teams. These teams also include combat engineers and hydrographic personnel who report beach conditions. In certain instances, reconnaissance vehicles may swim to shore under their own power. Conditions permitting, they may be landed by air cushion vehicles. Some reconnaissance teams also may be airlanded by helicopter or dropped by parachute behind defended positions. The reconnaissance platoon has two objectives:

- To provide information to the main landing force about enemy defensive positions and enemy reinforcements on the march toward the beach.
- To screen forward and to the flank of the amphibious landing teams.

Multiple Rocket Launcher Battery. With the exception of the three mortars organic to each naval infantry battalion, the regiment's six BM-21 multiple rocket launchers constitute the sole organic artillery assets of the naval infantry regiment. BM-21s provide fire support for amphibious landings and also may be used by the naval infantry in a coastal defense role. Each launcher can deliver considerable firepower with its forty 122-mm high-explosive rockets.

Antitank Battery. The naval infantry regiment's six BRDMs of its antitank battery are formidable antitank weapon systems. These weapons augment the man-pack antitank guided missiles (ATGMs) and SPG-9 recoilless guns employed at battalion level and generally constitute the regimental antitank reserve. The ATGM/BRDMs normally are employed to protect the flank of the landing force from counterattacking tanks and against enemy weapons emplacements.

Air Defense Battery. Besides the three SA-7s at company level, air defense is provided to regimental units by the four ZSU-23-4 self-propelled anti-aircraft guns and four amphibious SA-9 surface-to-air missiles (SAMs) of the air defense battery. Supporting naval ships provide air defense throughout all phases of the landing operation.

Engineer Company. The engineer company contains three combat engineer platoons. Normally, a combat engineer platoon is provided to support each battalion assault force. It clears obstacles and minefields along the approaches to the shore, on the beaches, and on routes leading inland from the beaches.

Signal Company. The signal company of the naval infantry regiment consists of a headquarters and service section, a radio platoon, and a wire/telephone platoon. The headquarters and service section provides courier service and limited signal and vehicle maintenance support for the company. The radio platoon provides vehicles, radios, and operators for the regimental commander and staff. The wire/telephone platoon installs and operates switchboards for command posts and the message center, and lays wire when directed.

Chemical Defense Company. The regimental chemical defense company consists of a company headquarters, a decontamination platoon, and a chemical and radiological reconnaissance platoon. The decontamination platoon is organized into three squads with one ARS decontamination vehicle each. The chemical and radiological reconnaissance platoon consists of three squads with one BRDM in each squad.

The chemical defense company of the regiment normally provides one reconnaissance squad to the battalion assault force to determine and report levels and types of contamination in the landing area and to mark cleared lanes for advance of the main force. If the regiment is not conducting similar landings elsewhere,

the remaining two reconnaissance squads also can be employed to check alternate advance routes. Decontamination vehicles normally set up on the far side of the contaminated areas to spray the advancing naval infantry vehicles on the march. One or more squads can be employed, depending on regimental requirements.

Rear Service Units. Rear service units (transportation, supply, maintenance, and medical) are small in keeping with the limited scope and duration of mission assigned to naval infantry. Principal supply is from the ships offshore. Service units may provide platoon-sized units to support battalion assault forces. Casualties are evacuated in returning empty supply trucks and other service vehicles.

With the Soviet Navy playing the dominant role, units of all branches of the armed forces may provide support for amphibious landings. The navy transports the naval infantry to the enemy-held shore; provides gunfire; sweeps offshore minefields; protects the landing with missile ships, gunboats, and anti-submarine warfare ships; and provides logistic support.

Naval aviation and the Soviet Air Force provide air support on the beach. They also attack enemy ships hindering the advance of the amphibious assault force, and conduct aerial reconnaissance. Air defense units protect the amphibious force against air attack during

embarkation, sea passage, debarkation, and shore combat operations. Missile and artillery units strike beach defense forces and weapon systems.

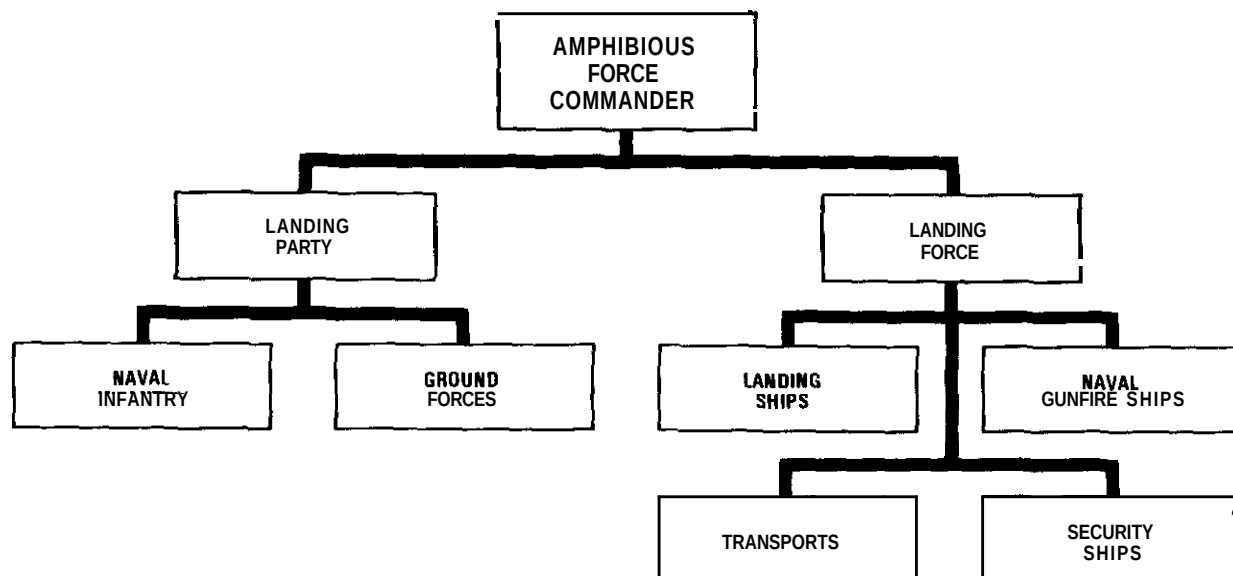
Soviet Ground Forces. The Soviets consider motorized rifle troops of the ground forces to be potential participants in amphibious operations. Ground forces will probably conduct an amphibious operation with naval infantry troops. The naval infantry's special skills are utilized to the maximum to insure success of the assault landing.

Naval infantry landing teams probably lead the assault. They have responsibility for breaching anti-landing obstacles in the water and on the shore, for seizing a beach head, and for securing the approach of the main force to the landing area. The main body, consisting largely of motorized rifle troops, follows. Naval infantry personnel may be attached to motorized rifle subunits to assist in overcoming the special problems of an assault landing.

CONDUCT OF THE AMPHIBIOUS ASSAULT

The Soviets maintain that amphibious assaults can be conducted both day and night, in inclement weather, and under radio silence until successful landing. Airborne, heliborne, air, ground, and naval forces have practiced jointly in such landings.

Soviet Amphibious Force Organization



Phases of the Assault

The five phases in a Soviet amphibious assault are:

- Preparing of equipment and amphibious units.
- Loading of personnel and equipment on ships and transports.
- Moving by sea to the objective area and debarkation
- Battle for the beachhead by the amphibious units.
- Landing of ground forces and withdrawal of the naval infantry.

The naval infantry is trained to commence operations either while at sea or from an alert status at their land bases. When alerted, an amphibious assault force mans its equipment and moves out to its embarkation points for loading aboard landing ships. The landing ships ideally arrive at the embarkation points shortly before or at the same time as the arrival of the assault forces. This precludes congestion of the amphibious force at the embarkation point awaiting transport.

The vehicles are loaded on in reverse order so that the assault vehicles can disembark first at the target area. Vehicles are then tied down for the movement by sea. After loading, the ships form a convoy under the protection of combat ships and aircraft.

The amphibious landing may take place in conjunction with a ground force battle underway near the sea-coast. In this case, the supported ground force usually sends a reconnaissance party of up to a motorized rifle company with engineers attached to reconnoiter the landing area. The information from this reconnaissance party is passed to the amphibious force and supporting air forces. The enemy defenses them may be fired upon by aircraft, naval gunships, and ground force artillery.

A battalion assault force (BAF) commander usually is assigned an immediate mission, a direction of attack, and the overall landing objective. Normally the immediate mission is to destroy personnel and weapons in the enemy's first line of defense and to capture shore terrain for the landing and deployment of follow-on ground forces. The depth of the BAF's immediate mission depends upon the strength and disposition of the enemy defenses.

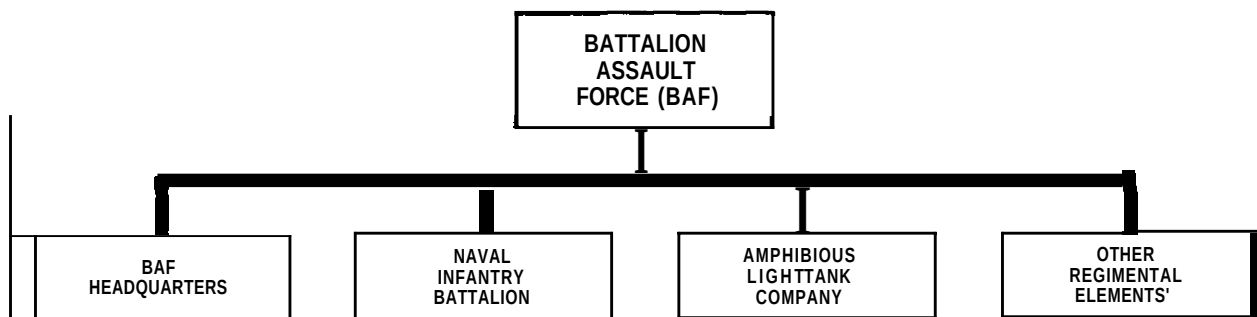
A company landing as part of a BAF is given an immediate mission, normally to seize a strongpoint in the enemy's defenses and to protect the landing and deployment of follow-on forces. The company also is given a direction for further advance. A platoon is assigned an attack objective and a direction for further advance.

The battle for the beachhead begins with naval gunfire on coastal targets. Fires are concentrated on enemy artillery, obstacles, and troop concentrations.

An airborne or heliborne assault inland to block enemy reserves heading to the beachhead may support the amphibious assault forces. Naval infantry units may conduct this type of airborne or heliborne operation.

While naval gunfire and air strikes suppress enemy fire, minesweepers clear paths through offshore minefields for passage of the landing ships. Destroyers and other antisubmarine warfare (ASW) ships protect the amphibious force from attacks by submarines and other warships. When approach lanes are cleared, the first wave of amphibious tanks disembarks and swims toward the shore. The amphibious tanks commence firing with their main guns at targets of opportunity while in the surf.

Soviet Naval Infantry Battalion Assault Force (BAF)



*Can include any or all of the following elements: medium tank, reconnaissance, multiple rocket launcher, antitank, air defense, engineer, signal, chemical defense, transportation, supply, maintenance, medical

The following wave is made up of BTR-60s. Recent amphibious exercises in the Baltic have employed air cushion vehicles to carry a portion of the assault forces to the shore.

Troops do not dismount from their BTR-60s after reaching the shore unless the beach is defended. Normally, in the absence of defenses or in the face of lightly defended positions, combat vehicles continue forward to seize the objectives. They fire while on the move, maintaining the momentum of the attack, and pushing on to link up with an airborne or heliborne force or ground force to secure the beachhead for the follow-on forces.

In the face of determined resistance, the naval infantry troops dismount to seize their objectives, to secure the beachhead, and to provide cover for the main force landing on the beachhead behind them.

The follow-on ground force units disembark, move to shore, and continue the battle inland while the naval infantry unit is withdrawn. Withdrawal of the naval infantry terminates the amphibious assault phase of the operations.

Assault Formations

The formation of the battalion assault force is variable. A first wave force may contain an amphibious tank platoon as the lead element with one or two of the naval infantry companies, supporting engineers, and a chemical defense platoon. A second wave may consist of the remaining naval infantry company or companies, led by a platoon of amphibious tanks.

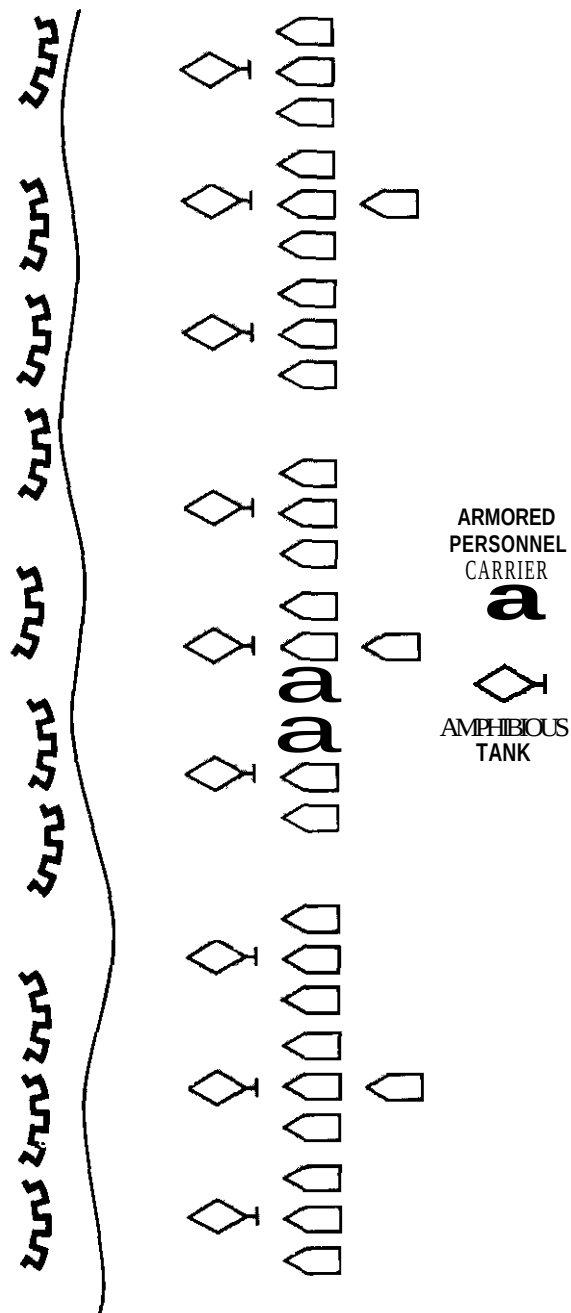
The entire naval infantry battalion could deploy in column, line, wedge, or other variation in a single wave. Ground force units such as a motorized rifle battalion deploy as a second wave.

The diagram at the right shows the assault of a naval infantry battalion deployed in line in a single wave. Amphibious landing ships have launched the APCs and amphibious tanks. Tank fire is directed at antitank weapons, artillery, troop strongpoints, bunkers and troop concentrations. The Soviets train to fire their weapons while afloat.

For a regimental operation, a naval infantry battalion attacking in line formation could constitute the first wave. The remaining battalions are held back for the second and possibly third waves or echelons.

If offshore obstacles are present, the combat engineers clear three to six lanes for the battalion. On wide frontages with few or no obstacles, the battalion may adopt a line formation. Narrow frontages may call for company-sized assaults either on line or in column formation.

Amphibious Assault Landing



A SOVIET NAVAL INFANTRY BATTALION, LINE FORMATION IN A SINGLE-WAVE AMPHIBIOUS ASSAULT LANDING WITH SUPPORTING AMPHIBIOUS TANKS.

Weaknesses

Surprise. If the ships of the amphibious force are detected en route, the defenders have time to reinforce likely landing areas with troops, artillery, and air support. The amphibious force also may be attacked by enemy naval forces.

Air Cover. If the amphibious landing force does not have tactical air superiority, the assault force would be vulnerable to air strikes at sea and on the beaches. SA-7s, ZSU-23-4S, and SA-9s can be fired from the decks of the landing ships and ashore. These weapons complement naval anti-aircraft fire, but might not be sufficient to insure success of the assault.

Weather. Fog, heavy rain, or other periods of reduced visibility could cause disorientation of the assault force. Such disorientation could cause elements of the units to be dispersed beyond the control of the unit commanders and even outside the objective area altogether.

Sea Conditions. Heavy surf could capsize vehicles and break up the assault formation. Troops inside the vehicles would not have stable platforms from which to fire. Fire from amphibious tanks in the water would be useless in any but the calmest conditions. Seasickness could become a problem and decrease the effectiveness of assault troops.

Enemy Obstacles. A well-prepared system of obstacles and mines could slow or stop an assault landing. Air cushion vehicles may skim successfully over submerged obstacles, but passage of amphibious vehicles could be blocked.

Enemy Armor. Enemy tanks or guns could destroy the assault force. Amphibious vehicles are lightly armored and extremely vulnerable to most types of enemy fire.

Rates of Advance. If the first waves are prevented from moving inland from the beachhead, massing of troops, vehicles, and weapons can occur. The Soviets plan for rapid advance inland of the naval infantry to follow up with a large ground force with supporting artillery and staying power. Upsetting the timetable by forcing the naval infantry units to stop or slow down would not only reduce the momentum of the attack but would subject troop concentrations to enemy fire.

Marking of Lanes. The orderly procession of the assault columns depends on cleared lanes being marked clearly with buoys or panels. If these were destroyed or moved, the columns might deviate from the cleared lanes to the shore and could be destroyed by obstacles or mines.

Communications. The Soviets rely heavily on pyrotechnics, panels, and other forms of non-radio communications before the assault. Rapidly changing tactical situations may make radio communications essential. Enemy jamming or interfering with radio communications could seriously degrade the assault's success.

Airborne Landings. The Soviets often conduct amphibious exercises in conjunction with airborne or helicopter landings. The airborne or helicopter forces attempt to keep reinforcements from reaching the amphibious landing area. If these troops land in the wrong area or are otherwise prevented from landing successfully, the naval infantry could face stiffened resistance.

Beach Conditions. Not all shorelines are suitable for landing of amphibious vehicles or landing ships. If Soviet beach reconnaissance teams are prevented from accurately ascertaining beach gradients, soil conditions, and other landing site factors, the amphibious assault could fail.

CHAPTER 5

UNCONVENTIONAL WARFARE OPERATIONS

Soviet unconventional warfare (UW) consists of a variety of military and paramilitary operations. UW includes partisan warfare, subversion, and sabotage, conducted during periods of peace and war. It also includes other operations of a covert or clandestine nature.

Past Examples of Unconventional Warfare

- Bolsheviks employed partisan guerrilla units against the Czarists and other opponents during the Russian Civil War of 1917-20.
- Soviet partisan forces were used extensively against the Germans during World War II.
- Special purpose troops were used to crush resistance to Soviet domination over Eastern Europe.
- Soviet special purpose forces were used in the Soviet invasion of Czechoslovakia in 1968 to arrest Czech leadership and secure key objectives in Prague.
- Soviet special purpose forces played an important role in the invasion of Afghanistan and the elimination of President Amin.

DOCTRINE

Unconventional warfare (UW) is a key element of Soviet doctrine. Soviet UW capabilities constitute a formidable threat. UW forces conduct reconnaissance, espionage, sabotage, assassination, and interdiction of lines of communications.

Soviet unconventional warfare is designed primarily to support a surprise attack. Before the start of hostilities, clandestine operations in the target area increase the probability of destruction of key targets well before enemy rear area security measures are heightened.

The Soviets also appreciate the important role that UW can play in support of a main offensive. Even if there is success in only part of the planned UW operations, it may be enough to disorganize the enemy and to insure that Soviet forces can seize and maintain the initiative.

Soviet UW activities are managed at the highest level of government authority. The Committee for State Security (KGB) and the Main Intelligence Division

(GRU) of the General Staff are the most likely agencies to screen, recruit, select, and train UW personnel. These agencies also can be assumed to plan and execute Soviet UW operations. UW activities are protected by stringent security measures.

Soviet writings point out the effectiveness of UW units and boast of their accomplishments in World War II:

During the war, the partisans killed, wounded, or took prisoner hundreds of thousands of German troops, collaborators, and officials of the occupation administration. They derailed more than 18,000 trains, and destroyed or damaged thousands of locomotives and tens of thousands of railway cars and cisterns. The partisan war affected the morale of the German Army, keeping the German troops in a constant state of fear.

Pospelov

*Great Patriotic War of the
Soviet Union 1941-1945.*

MISSIONS

Soviet unconventional warfare missions are divided into three basic categories: strategic, operational, and tactical. The principal differences in the missions are the level of command and control used and the nature of the targets engaged. The overall objectives are similar:

- Weaken military capabilities of target country.
- Support follow-on conventional military operations.

Strategic

Strategic UW missions are controlled by the KGB. UW forces conduct strategic missions in the enemy's heartland to reduce the enemy's ability to continue the war. Strategic missions include efforts to:

- Intimidate and demoralize the population.
- Create chaos and disrupt public services.
- Undermine national resistance.

Selected regular airborne forces also may perform strategic UW missions. These are not normal airborne missions which generally require coordination with front-line operations. Rather, small elite airborne

groups operate at great depths behind enemy lines. Their basic objectives are to weaken enemy operational readiness and combat effectiveness. Their missions could include:

- Neutralization of major enemy headquarters.
- Destruction of enemy nuclear weapons.
- Sabotage to support disruption of enemy communications and key logistics.

Operational

Operational UW missions in support of the front and subordinate armies are carried out under the control of the front commander. Airborne forces GRU special purpose units, and army sabotage or reconnaissance units may perform these missions. Their primary objective is to destroy or neutralize enemy nuclear means within the front's area of operation, to a depth of 350 to 1,000 kilometers. Additional missions include:

- Destruction of enemy nuclear weapons and associated systems.
- Reparation and security of landing sites for regular airborne forces.
- Intelligence on location and strength of enemy forces.
- Sabotage operations against airfields, railway lines, road and rail bridges, and communications systems.
- The use of terror to intimidate the population.
- Organization of local guerrilla or partisan groups.

Operating in the enemy rear areas, these units try to prevent effective and timely employment of reserves. They generally disrupt the enemy offensive and defensive capabilities.

Tactical

Tactical UW missions are conducted in support of divisions and are similar to the operational missions described. Tactical missions are carried out on a smaller scale and directed at targets in the division's area. The Soviet divisional reconnaissance battalion has a limited capability to perform raids to a depth of 100 kilometers.

UNCONVENTIONAL WARFARE FORCES

The Soviet leadership has a variety of elite forces for conducting UW missions: special units of the KGB, GRU, airborne, and ground and naval forces. The KGB is probably responsible for the overall planning and coordination of sabotage actions in peace and war. The KGB special purpose units have a sabotage mission and are thought to be targeted primarily against the civilian

sector. Their tasks would be to create general panic among the civilian population, to disrupt civil government and public utilities, and to damage or destroy key production facilities.

The regular Soviet Armed Forces maintain elite airborne units, special sabotage and reconnaissance units, and special long-range reconnaissance units for UW missions. The most powerful and numerous are the airborne troops under the direct control of the General Staff in Moscow. Some of these airborne units are designated as "special purpose" troops. They operate in small groups against key political, military, command and control, and transportation and industrial targets in the enemy rear area.

The Soviet potential for UW is not limited to special KGB and elite airborne units. Within the USSR the General Staff's GRU maintains a number of small special purpose units. These units are concerned primarily with UW activities in direct support of combat operations. Their main tasks include preparing for the landing of airborne units behind enemy lines, reconnaissance and intelligence reporting on nuclear delivery means and other vital military targets, sabotage, disruption, neutralization of key political and military personnel, and possibly the use of nuclear, chemical and biological weapons.

A Soviet special purpose brigade is assigned to and controlled at front level. Soviet armies and divisions also have groups within their reconnaissance units that are capable of conducting long-range UW operations.

Agents

Agent networks in the target country support Soviet unconventional warfare operations. The KGB and GRU recruit agents in vital areas of the enemy's social structure—in political circles, in his intelligence services, at all levels of the military, within key industries, in a variety of academic institutions, and in the media—press, radio, and television. Some of these agents actively engage in subversion, while others are "sleepers," prepared to act on call. Agents are trained to operate as political agitators, intelligence collectors, and saboteurs. The GRU recruits agents in the vicinity of military targets—airports, missile bases, arsenals, communication centers, tank dispersal centers, and also on routes used for troop movements. Just before the beginning of hostilities, Soviet special purpose airborne troops, GRU special purpose units, and special long-range reconnaissance units could deploy and link-up with KGB or GRU agents already operating in the target area. Also, local communist and other leftist groups may provide support.

Personnel

Soviet unconventional warfare personnel are specially screened and selected. The specialized nature of their missions requires individuals (both officers and enlisted) to have the following qualities: youth, above average intelligence, ability to learn foreign languages, excellent overall physical condition, and health. However, the paramount prerequisite for selection is political reliability. Individual reliability is assessed in part based on a spotless record of participation in young communist organizations, such as the Young Pioneers, the komsomol and DOSAAF. The final approval rests with the KGB.

EQUIPMENT

All varieties of Soviet and enemy weapons and equipment are available to Soviet UW personnel depending on their mission. Because of the clandestine nature of these missions and the distances behind enemy lines at which they plan to operate, UW forces normally do not use Soviet combat vehicles during a mission. Instead, their small teams are outfitted with the best man-portable and airdrop and demolition or incendiary devices. Additional equipment can be air-dropped into the area and retrieved later by means of homing devices.

In most cases, these personnel would be dressed in foreign uniforms or civilian clothes and equipped with weapons of the target country. They could use indigenous civilian or military vehicles for transportation. Soviet UW teams could be infiltrated by parachute, sea, or air landings, or penetrate borders disguised as civilians.

TRAINING AND PREPARATION

Soviet unconventional warfare units receive intensive training. Small groups of men are trained as teams. Each team has an officer in charge who speaks the language of the target country fluently; a senior sergeant serves as second in command. Other members of the group are trained as radio operators, and weapon and demolition experts. Besides the normal military training, the following special skills are emphasized:

- Tactics of infiltrating and exfiltrating the target area.
- Night operational linkups.
- Sabotage methods using explosives, incendiaries, acids, and abrasives.
- Parachute training.
- Clandestine communications.
- Hand-to-hand combat and silent killing techniques.

- Language and customs of target country.
- Survival behind enemy lines.
- Identifying and locating targets.

To make training as realistic as possible, the Soviet UW training centers are equipped with realistic models of key targets such as enemy facilities and weapon systems.

UW missions require intensive training and preparation. The Soviets emphasize the following factors when preparing for special missions:

- Absolute secrecy.
- Detailed planning and coordination.
- Unity of command.
- Resupply from enemy stocks.
- Detailed target lists with alternate objectives.
- Multiple destruction methods.
- Effective, secure communications.

AN UNCONVENTIONAL WARFARE SCENARIO

The following hypothetical scenario illustrates the employment concept for the full exploitation of Soviet UW assets.

In support of a coordinated attack, GRU special purpose teams are airdropped or air-landed into their respective target areas some days before H-Hour. Special KGB sabotage teams have been infiltrated over a longer period of time by clandestine methods to include international commercial travel. These sabotage teams could be prepared to begin their operations well before the enemy's rear security apparatus can be fully alerted. In the prewar period, some KGB personnel seek to undermine national resistance through political measures, while sabotage teams begin isolated acts of sabotage, such as destroying a key bridge. KGB teams also attempt to create chaos at major ports and to disrupt communications.

Shortly before D-Day, additional sabotage teams are inserted and the majority of "sleepers" are activated.

Sabotage equipment can be smuggled into a country by any number of secret methods and stored in hidden, but easily accessible caches. Smuggling techniques may include dropping waterproof containers offshore from ships and submarines. On prearranged signals, the containers are recovered and stored by clandestine support personnel.

Sensitive or fragile equipment, such as detonators or electronics material, can be brought into the country by diplomatic pouch and made available to the teams through established procedures.

Teams attempt to place their explosives and incendiary devices on the targets and set them to detonate at H-Hour. All efforts are made to prevent association of these acts with the USSR and to maintain the element of surprise for the main attack.

Immediately before H-Hour, the UW teams locate targets and prepare to:

- Destroy nuclear capable weaponry.
- Jam radar installations.
- Disrupt enemy command, control and communications (C3).
- Kidnap or assassinate key political-military leadership.
- Seize or destroy radio and TV broadcasting facilities.

At H-Hour, a wide spectrum of sabotage actions are initiated simultaneously to weaken the military capabilities of the enemy. This sudden coordinated assault will have serious and immediate effects on enemy offensive capabilities. Special units of the regular air-home forces are tasked to destroy nuclear depots, installations, missile units, and nuclear-associated airfields. Also, GRU special purpose units and sabotage and reconnaissance units of front, army, and division are fully operative behind enemy lines. Their primary missions are to neutralize enemy nuclear systems. But secondary missions include disrupting communications, sabotage of airfields, depots, air defense, key headquarters, and logistic centers. Destruction of these targets will greatly assist the main offensive, as the enemy will find it more difficult to organize his defenses, or to plan effective counterattacks.

CHAPTER 6

RIVER CROSSINGS

Soviet military theorists place great emphasis on high advance rates by armor-heavy columns in the offense. The Soviets stress that this high advance rate would be important in the European theater with its "relatively small" operational depth. Such an offensive would be impossible without overcoming Europe's many north-south water obstacles. A 1965 Soviet study revealed that in the European theater, forces would encounter water obstacles up to 100 meters wide every 35 to 60 kilometers, between 100 and 300 meters wide every 100 to 150 kilometers, and greater than 300 meters wide, every 250 to 300 kilometers.

In response to these challenges, Soviet planners have devoted tremendous resources to improving the river crossing capabilities of their combat equipment. They have provided their ground forces with large stocks of specialized bridging and assault crossing equipment. River crossing figures prominently in most Soviet exercises.

Keys to successful river crossings

- Reconnaissance.
- Early planning and thorough organization.
- Destruction of the enemy in the area of the water obstacles.
- Speed and surprise.
- Broad front crossings.

Swift development of the attack on the far bank.

- Continuation of the attack throughout the crossing.
- Skillful and rapid engineer employment.
- Air defense.

EQUIPMENT AND ORGANIZATION

To insure a rapid advance, the Soviets have built river crossing capabilities into numerous types of ground force equipment. All Soviet armored personnel carriers, infantry and airborne fighting vehicles, and scout vehicles produced since the 1960s are amphibious, as are some self-propelled (SP) artillery and tactical surface-to-air missile (SAM) carriers. Soviet medium tanks have been provided with snorkels for crossing obstacles up to 5.5 meters in depth. As little as 15 minutes are required to prepare some Soviet tanks for underwater fording, although up to a half hour is required for older tanks.

Extensive tank snorkeling training is conducted. Tank crews train for up to 2 months before their first underwater crossing. Tanks cross underwater in first gear and follow a predetermined azimuth with the aid of the on-board gyrocompass. This direction can be altered by instructions radioed to the tanks from the unit commander. If a tank stalls on the bottom, it must be flooded before crew members using their breathing apparatus can open the hatches and escape.

A snorkeling tank cannot cross a water obstacle if the entry slope exceeds 47 percent (25 degrees), if the exit slope is greater than 27 percent (15 degrees), or if the current velocity is more than about 3 meters per second. Snorkeling is not feasible during winter, because drifting or unbroken ice could rip away the snorkel. It is also impossible if the water is deeper than 5.5 meters, if there are craters or large boulders on the river bottom, or if the bottom is too soft.

Unmanned tanks can be moved across a river by means of a winch system. This system permits a tank company of 10 tanks to be moved across a river up to 200 meters wide in about 35 minutes (excluding preparation). One pulley block and an anchoring unit are transported to the far bank in a tracked amphibian, armored personnel carrier (APC), or power boat. It must be installed 30 to 45 meters from the water's edge if three tanks cross simultaneously or 10 to 15 meters for a single tank. After tanks are prepared for underwater crossing, they are pulled across by two armored recovery vehicles while their crews cross in APCs or tracked amphibians.

The Soviets estimate that about 60 percent of all obstacles they would encounter in Europe are less than 20 meters wide. Accordingly, there are several models of both tank- and truck-launched gap bridges for rapidly crossing ravines, partially blown bridges, antitank ditches, road craters, and similar obstacles. Gap bridging is used frequently in combination with ponton bridges to provide shore-connecting spans or to extend the bridge to sufficient length.

Each Soviet motorized rifle and tank regiment has one tank-launched bridge (MTU) per tank battalion; i.e., one MTU per motorized rifle regiment and three per tank regiment. Mounted on a T-54/55 tank chassis, the MTU assault bridge is 12.3 meters long. The folded ramp sections of the new MTU-20 (which has become the Soviet standard) extend the bridges length 20 meters. Both spans have a 50-ton carrying capacity and can be launched in 3 to 5 minutes without crew exposure.

Some Soviet regiments may have received a Czech-designed scissors bridge (MT-55) with an electro-hydraulic control system that permits bridge emplacement in 1.5 minutes. The MT-55 span is 17 meters long and can support loads up to 50 tons. The launcher has a gap-measuring device and infrared equipment for bridge laying at night.

Each motorized rifle and tank regiment also has a set of four truck-launched scissors spans (TMM). The TMM set, with its four 10.5-meter spans, can erect 42 meters of class 60 (capable of supporting 60 tons) bridging in 20 to 40 minutes.

The engineer battalion organic to each Soviet tank and motorized rifle division provides the division commander with flexible river-crossing support. Equipment organic to the battalion includes PMP ponton bridging (frequently used to make ferries), power boats, GSP self-propelled ferries, tracked amphibious transporters, tank- and truck-launched gap bridging, and limited stocks of fixed wooden bridges.

The assault crossing company of a Soviet division's engineer battalion has GSP tracked ferries and K-61 or PT tracked amphibians. PKP amphibious trailers may be assigned to units equipped with PTS. Tracked amphibians are used primarily to transport artillery, air defense, or logistical elements across water barriers. (The Soviet 122-mm SP howitzer is amphibious.)

The assault crossing company's GSP ferries are used to transport armor across water obstacles that are impossible to ford or snorkel. Missile units and other organizations with heavy equipment also rely on the GSP.

The Soviet PMP ribbon bridge is revolutionary both in its simplicity and rapid emplacement time. Its accordion-like pontons are launched when the trucks on which they are transported are braked at the water's edge. They are opened automatically by a torsion bar mechanism, rotated manually 90 degrees, and quickly joined to form a continuous strip of floating roadway. Soviet motorized rifle and tank divisions have a half set of 16 PMP and two end (ramp) sections in their engineer battalion.

The engineer battalion's PMP ponton bridge company can construct 119 meters of 60-ton bridging at a speed of 7 meters per minute. PMP pontons also may be split in half to form 281 meters of 3.27-meter-wide, class 20 bridging. Bank preparation is the critical factor for bridging operations. Erection times vary depending on enemy resistance, crew training, and conditions at each site. PMP pontons can be retrieved in about twice the time required to emplace them. Each ponton carrier has a jib, winch, and roller system to accomplish this.

If the water obstacle is wider than the unit's organic bridging capability, or if the site is not secure enough to build a bridge, a PMP company also can form either eight 40-ton rafts, five rafts of 60-ton capacity, four rafts of 80-ton capacity, three 110-ton rafts, or two 170-ton rafts. Configured as three 110-ton platforms, the PMP company can accomplish the simultaneous lift of nine medium tanks (three platoons). The PMP bridging company has six BMK power boats to assist in bridge emplacement or raft propulsion. Models ranging from 75 to 180 horsepower are in use, most of which are transported on retractable wheeled struts. The newest model, BMK-T, is transported and launched from the same truck that transports the PMP. All Soviet power boats are compartmented for buoyancy. Even if two of the BMK-T's four compartments are flooded, it will not sink.

A PMP bridge permits crossing by tanks at speeds up to 30 kilometers per hour. Speeds for wheeled vehicles are greater. The bridge can be built in water having a current velocity up to 2 meters per second. By attaching bow and stern shields to PMP sections, the crew can emplace the bridge in currents of up to 2.5 or 3 meters per second without loss of stability.

Army and front have river crossing capabilities in their organic engineer regiments or brigade. Ponton brigade regiments and assault crossing battalions also provide river crossing support.

Each Soviet combined arms or tank army has one ponton brigade regiment, while two may be subordinate to a front. Most PMP regiments are organized into two battalions of three companies each and have a total of 108 PMP pontons capable of bridging 681 meters. The regiment also has eight tracked amphibians (K-61 or PTS) or GSP ferries.

Assault crossing battalions that provide amphibious transport and ferry support to army or front elements can be allocated to divisions to speed up crossing operations. There is one battalion in each army, with up to three in a front. If equipped with the PTS and PKP trailer, the battalion's two tracked amphibious companies are able to transport two towed artillery battalions simultaneously. Each GSP ferry can transport one Soviet medium tank.

To provide the logistic support necessary for planned rapid offensives, the Soviets have expended considerable resources to field a variety of line of communications (LOC) bridging. LOC bridges are essential for the orderly introduction of divisions and combat forces of successive echelons, as well as uninterrupted resupply of combat units. They are emplaced by troops of the Military Transportation Service. In anticipation of wartime interdiction of

existing bridges, the Soviets and their allies have stockpiled obsolescent bridging and prefabricated bridge sections near strategic crossings.

The NZhM-56, a combination railroad and vehicular floating bridge, has an estimated carrying capacity of 120 tons. Soviet engineers have designed three new types of sectional bridging: MARM, SARM, and BARM (Soviet acronyms for small, medium, and large highway sectional bridge). The major disadvantage of sectional bridging is its slow erection process. The average rate of construction is 20 meters per hour if the bridge is built from a single bank or 30 to 35 meters per hour if the engineers start from both banks. Sectional bridging frees tactical bridging for further use by combat forces. MARM is also used to create overpasses over key road junctions, thus all viating congestion.

River barges are also used for LOC bridging. Large numbers of 600-ton barges are available throughout central Europe. They are placed end to end and connected with special ramps to form a "ribbon" bridge. Seven such barges would span a 400-meter-wide river and would take about 24 hours to construct. (For more information on engineer organization and equipment see FM 100-2-3.)

TACTICAL RIVER CROSSINGS

There are two basic types of Soviet tactical river crossings, the assault crossing from the march and the prepared river crossing. The Soviets prefer the crossing from the march, which is often the expected method. Normally, the Soviets only conduct the prepared crossing out of necessity within direct enemy contact.

Assault Crossing from the March

An assault crossing from the march is conducted with forces moving toward the river in dispersed, normally march, formation, across a wide frontage, at top speed. Forward detachments or airborne or heliborne forces may seize favorable crossing sites in advance. All measures are taken to insure that crossing is conducted as swiftly as possible and that the offensive is continued on the opposite shore.

A decision to conduct a crossing from the march is made as early as possible to allow maximum time for appropriate organization of forces and crossing equipment, and for reconnaissance of crossing sites.

The Soviets prefer crossing sites with gently sloping banks, fords, and a bend towards the attackers. Soviet commanders use maps, aerial photographs, engineer and combat patrols, radar, signal, and human intelli-

gence to determine the following:

- River width, depth, and current.
- Entry and exit gradients.
- Composition of river bottom.
- Bank composition and height.
- Obstacles on banks.
- Approach and exit routes.
- Critical terrain features overlooking both banks.
- Possible fording, ferrying, bridging, and snorkeling sites.
- Information on enemy defenses.

The number of reconnaissance patrols depends on the width of the river and the number of required crossing sites; patrols can vary from squad to platoon size. Reconnaissance patrols operate up to 50 kilometers forward of a division's main body.

Engineer reconnaissance units are equipped with tracked amphibians, scout cars, or APCs. They often mount a profilograph (a device used to determine width and depth of rivers) or the newer echo depth finder. Although such equipment significantly reduces exposure and reconnaissance time, it appears that most Soviet engineers use less sophisticated gear—a variety of bottom probes, range finders, and hydro-metric propellers or simply floats of some type and a stopwatch for measuring velocity. A sapper platoon assigned a reconnaissance mission would also typically have six mine detectors, grapnels with cables, radiation detectors, and light diving equipment.

Armored personnel carriers, preferably BMPs, make a rapid amphibious crossing to seize a bridgehead on the far shore. Their crossing normally is covered by smoke and supported from the rear shore by all available fires. Heliborne or, less probably, airborne forces, may be used to seize and hold a bridgehead on the far shore. Once the bridgehead is established, tanks cross by ferry, by fording, or by snorkeling. Artillery and other combat support equipment crosses on tracked amphibians. Later, tactical bridging is emplaced for follow-on forces.

The Soviets consider units engaged in a river crossing to be especially vulnerable to enemy aviation. They emphasize the need for tactical air defense at river crossing sites before a crossing is attempted. In some tactical situations they may choose to move part of their air defense assets across first to maximize the range of these weapons in protecting subsequent units making the crossing. Placement and movement sequence of air defense assets will vary as the Soviet commander assesses each new tactical situation.

Subunits acting as forward detachments advance as quickly as possible to the river, bypassing enemy forces whenever possible, to seize near-shore crossing sites

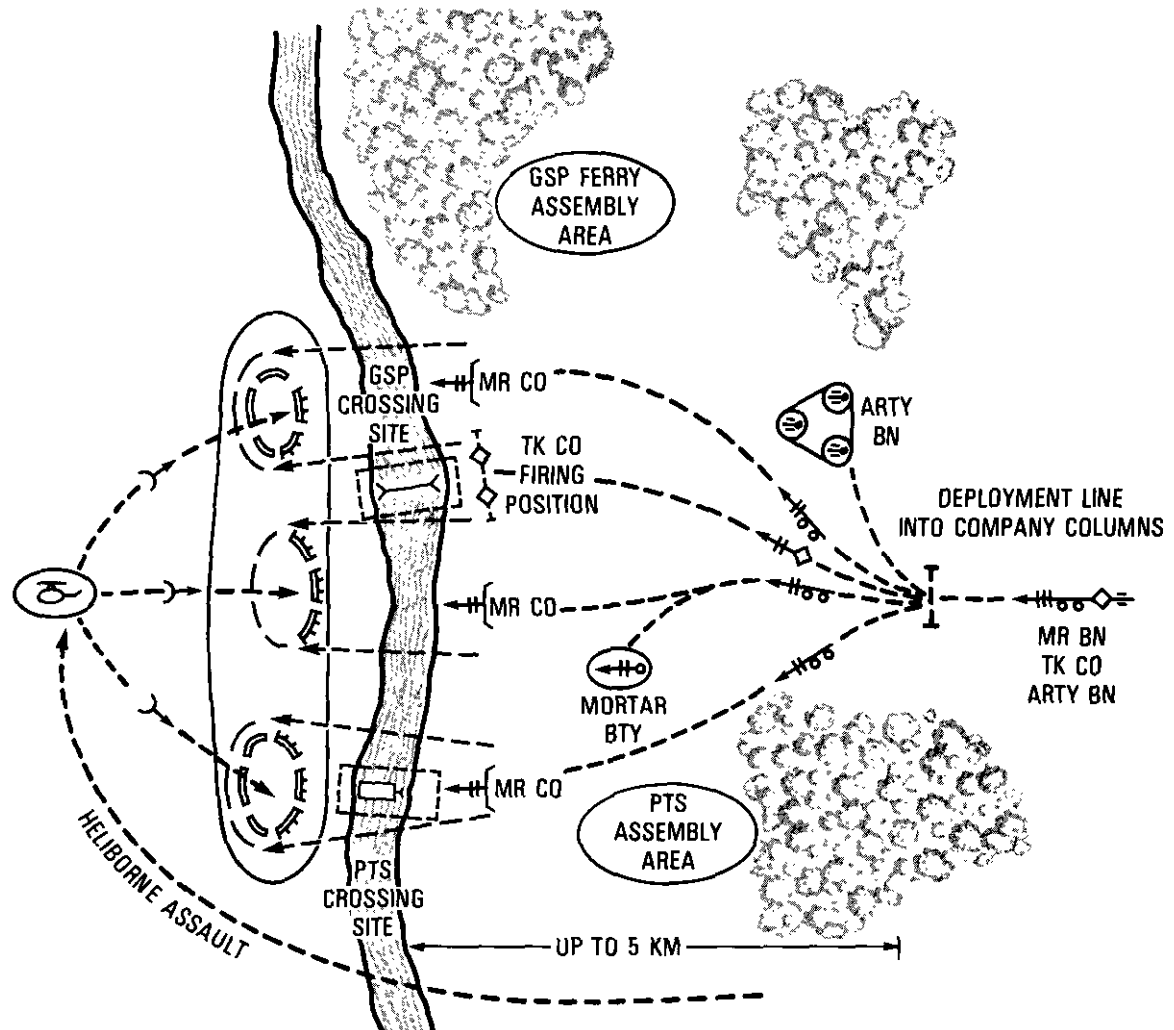
or to swim the river to seize a far-shore bridgehead. A forward detachment differs from an advance guard, which has the responsibility of clearing a route for advancement of its main force. Forward detachments attempt to slip through enemy lines to force and hold crossing sites. Advance guards follow and fight through any enemy encountered to make way for the main forces.

Based on reconnaissance, the Soviet commander organizes his unit to insure the most expedient crossing and continuation of the offense. The Soviets stress that tactical air support is more critical during river crossing operations than during other types of ground operations.

A motorized rifle battalion acting as a forward detachment usually is reinforced with a tank company, an artillery battalion, ferry and tracked amphibians, and air defense, antitank, and chemical defense subunits ranging from squad to company size. When acting as a forward detachment, a motorized rifle battalion would be 2 or 3 hours in front of the main body.

Advance guards destroy enemy forces to insure unhindered advance by the main force. As they approach the water barrier, advance guards exploit the success of forward detachments or air landed elements, forcing the obstacle from the march and developing the attack into the depth of enemy defenses when possible.

Motorized Rifle Battalion Assault Crossing



GSP ferry and PTS amphibian platoons have been attached to the motorized rifle battalion from regiment and division. The battalion deploys into company columns about 5 kilometers from the water, and the APCs of the motorized rifle companies deploy on line in three separate sectors about 400 to 500 meters from the bank. The attached tank company and artillery support the crossing by fire. Few tanks are transported in the first wave. Artillery, ATGMs, anti-tank reserves, and mobile obstacle detachments (possibly equipped with mechanized minelayers) cross immediately after the first echelon.

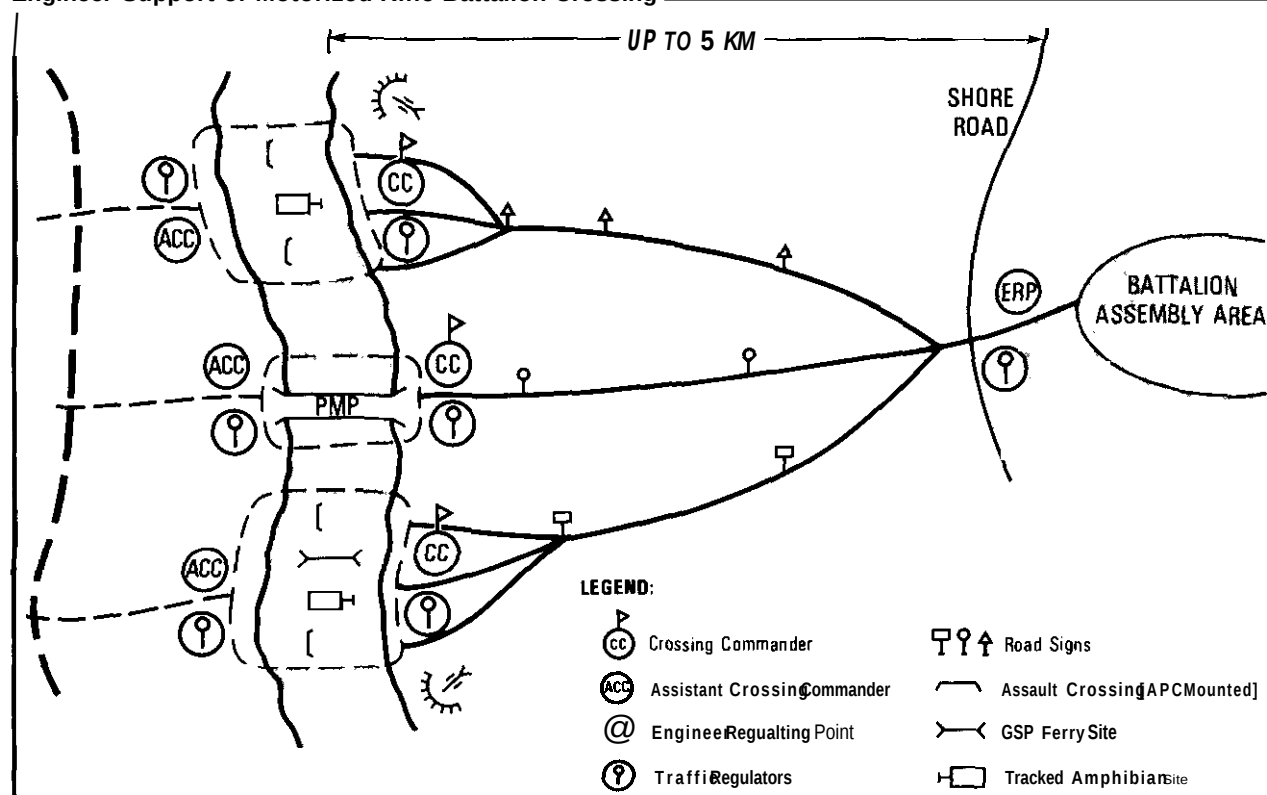
Another variant is shown below which depicts an assault crossing by two motorized rifle companies while the third company and support elements cross over a ponton bridge. Bridges are erected only after the far shore has been secured to a depth precluding direct enemy fire on the crossing site. However, if the enemy defense has been neutralized by fire or the opposite bank has been seized by airborne or heliborne forces, bridge construction may begin along with the assault crossing.

Crossing times for a motorized rifle battalion *vary* depending on the width and velocity of the river, time required to prepare embankments, enemy activity, visibility, and equipment available. Motorized rifle battalion crossings have been described as lasting from 45 minutes to an hour and a half. The first figure probably considers only combat elements, excluding support and logistic elements.

Tank unit crossings are more complicated than motorized rifle assaults. Although tanks may be attached to support motorized rifle assault crossings, a tank battalion usually crosses in the second echelon. However, a tank battalion could cross in the first echelon in a weakly defended sector.

A tank battalion crosses a river by fording, by going over bridges, by being transported aboard ferries or on tactical ponton bridging, or by snorkeling. Although Soviet tank crews receive periodic underwater training, snorkeling is the least-preferred option. Some elements snorkel across at one site while others cross elsewhere by other means. Sealing arrays are selected near concealed routes about 3 to 5 kilometers from the

Engineer Support of Motorized Rifle Battalion Crossing



river. Snorkels are installed about 1 to 2 kilometers from the water barrier.

Some tanks provide fire support for the crossing, and artillery is used for both direct and indirect fire. The far bank must be secured before tanks snorkeling starts.

Efficient traffic control is essential. If the traffic controller permits tank formations to mass, they become a lucrative target for enemy aviation and artillery. Tanks cross underwater in column formation at approximately 30 meter intervals. They cross at low speeds without shifting gears or halting. The tank must be halted to remove waterproofing before the turret can traverse and the main gun can fire.

Once motorized rifle and some tank elements have crossed, artillery and air defense elements are crossed on tracked amphibians.

A typical regimental crossing sector would be 10 kilometers wide, with two to three battalions crossing in the first echelon. Regiments will be allocated tracked amphibians, GSP ferries, and ponton bridging from division, army, or front organizations as mission and resources dictate. Tracked amphibians carry artillery, air defense, and support units, while GSP ferries transport tanks. With engineer support, a motorized rifle regiment can cross a river 200 meters wide with a current of 2 meters per second in 2 or 3 hours. A tank regiment normally does not cross in the

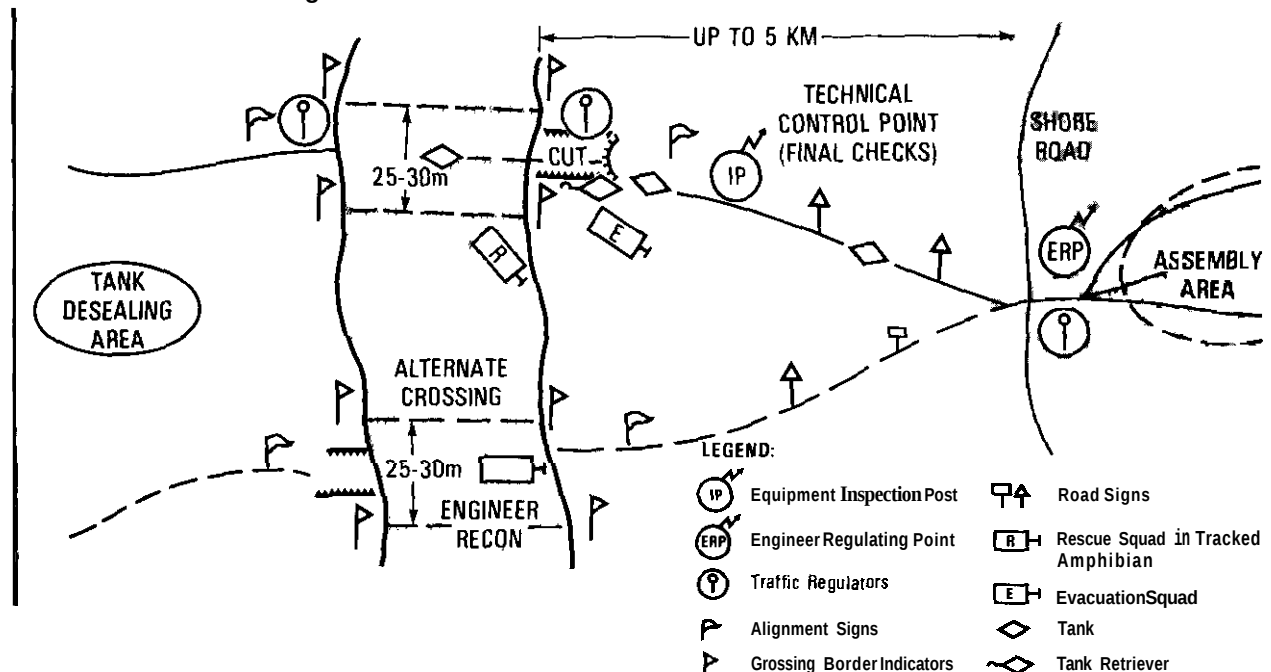
first echelon. Once PMP bridging has been erected, second echelon motorized rifle or tank regiments normally can cross in less than an hour.

Depending on the tactical situation, a division crosses a major water barrier with one, two, or three regiments in the first echelon in a zone 20 to 30 kilometers wide. A division's combat elements can cross a 200-meter-wide river in approximately 5 or 6 hours, using equipment organic to the division. If reconnaissance and site preparation time is included, a division's total crossing time may approximate 9 hours. A division might receive reinforcement from army or front engineer units.

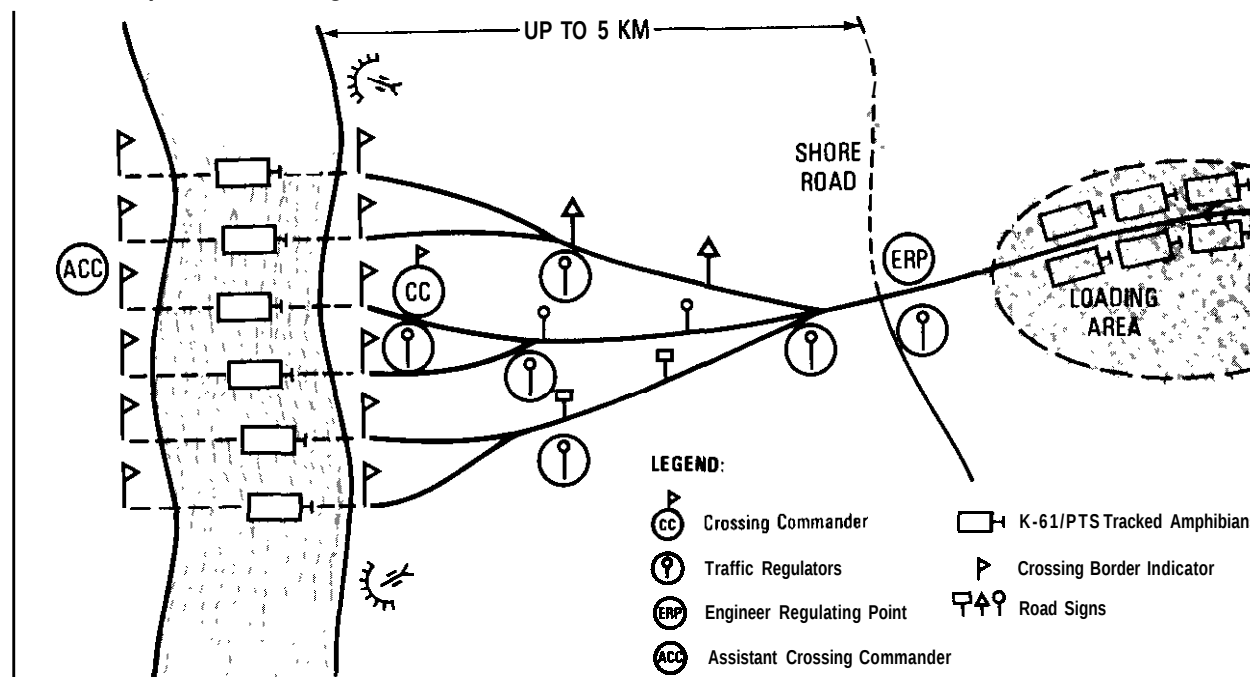
The Soviets believe river crossings can be managed successfully with equipment presently organic to their maneuver units. However, some Soviet theorists express concern that present levels may prove inadequate to conduct successive crossings of two or more major water obstacles. One way to solve this problem is to leapfrog divisions. Army and front-level engineer units have augmentation potential sufficient to establish a significant number of ponton bridges.

Combat bridging is further supplemented by LOC sectional bridging. According to Soviet estimates, LOC bridging can be erected by road construction troops in as little as 8 hours after the initial assault crossing. It is left in place for subsequent use by front-level units.

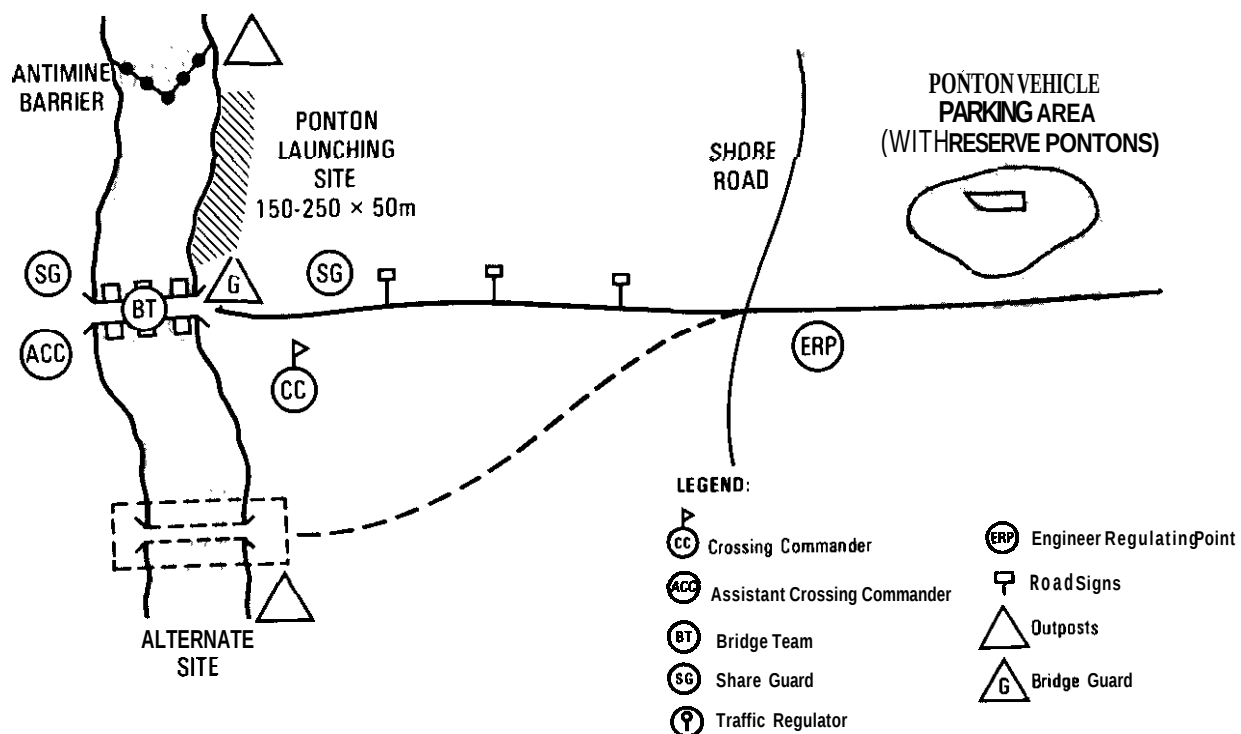
Tank Underwater Crossing Site



Tracked Amphibian Crossing Site



Ponton Bridge Crossing Site



Prepared River Crossings

Apparently because they expect to cross most rivers from the march at lightly defended or unoccupied sites, the Soviets devote considerably less attention to the enemy-opposed prepared crossing. Such a crossing requires detailed planning and preparation, centralized control, and massive suppression of enemy fires. They conduct a prepared crossing from a position in contact. The prepared crossing is used as a last resort, when an assault crossing from the march fails or is not possible.

A prepared crossing requires intensive reconnaissance. By day, troops observe enemy defensive positions and activity. Under cover of darkness engineer and reconnaissance patrols measure the river, inspect obstacles, and pinpoint crossing areas.

During preparation, troops make maximum use of existing fortification as well as cover and concealment of personnel and equipment. They prepare roads and cross-country routes for movement to crossing sites, as

are assembly areas and artillery positions. Such work is performed at night under the guise of improving the defense.

Twice as many troops as had occupied defensive positions normally launched the initial assault in a prepared river crossing. It generally takes place either at night or under a smoke screen. An artillery preparation is fired against enemy strongpoints. Airborne or heliborne forces may be used to block enemy reinforcements. Some artillery is employed in the direct fire role to neutralize enemy weapons remaining in the enemy defensive sector.

The prepared crossing is conducted similarly to the assault crossing. Numerous APCs swim across on a broad frontage supported by all available direct and indirect fires. Tanks and other heavy weapons and equipment follow. Bridging is emplaced only when bridge sites are secure from enemy observation and direct fire.

CHAPTER 7

MOUNTAIN WARFARE

Mountain environments vary widely according to soil composition, surface configuration, altitude, latitude, and climatic pattern. The Soviets consider any relief feature rising 200 meters above the surrounding area to be amountain. As a result, combat in mountains is hampered by:

- The number and condition of roads.
- The screening effect of mountains on electronic equipment.
- Fluctuations in weather.
- Increased wear and tear on equipment, increased fuel consumption, and logistical requirements.
- Reduced rates of advance.
- Slides and floods
- difficulty of bypassing NBC contaminated zones.
- Limited maneuver space for troops and vehicles.
- Masking of artillery fires.
- Requirement for special training and equipment.

OFFENSIVE ACTION

The nature of the terrain governs offensive action in the mountains. The goals of offensive actions are to control passes, road junctions, built-up areas, and adjacent high ground.

Soviet tactics in the mountains are planned to bypass enemy defensive positions, attack the enemy from the flanks and rear, and break up coordination between defending units.

Specially tailored regimental and/or battalion groups launch attacks on several axes (mainly in valleys and along roads and bridges). Companies attack on one axis, battalions usually on one, and regiments along two or three. Specially equipped helicopters are employed to assist in communications. Extensive use is made of combat engineers, who may be attached down to platoon level.

No specific mountain divisions have been identified in the Soviet Army for many years. A few divisions located in or near mountainous areas do receive some mountain warfare training, but the majority do not. Airborne forces are considered to be the best suited troops to fight in the mountains. Since the invasion of Afghanistan, Soviet military literature has devoted increased attention to mountain warfare problems and training for all combat arms. Recent open source articles state that some military districts have established mountain training centers to rotate combat battalions and regiments, as well as combat support units, for field training in mountain warfare.

Special training emphasis includes overcoming obstacles, weapons firing in adverse weather, and the use of natural cover.

Drivers receive special instruction in ascending and descending steep slopes and fording mountain rivers. Particular attention is paid to personnel being able to orient themselves.

Special equipment necessary for mountain warfare includes blocks, spades, and towing cables for tracked vehicles and lighter indirect fire weapons, such as the 76-mm mountain gun and the 160-mm mortar, for division and regimental artillery.

Tanks are used in the mountains mainly as mobile armored artillery. However, mountainous terrain restricts tank use to roads and ridges. Tanks are vulnerable to mines and plunging fire in narrow defiles and may be unable to elevate their main guns sufficiently to engage targets above them. In narrow defiles, a single knocked-out tank is likely to block the entire defile.

Use of tanks in the mountains also poses special problems with regard to maintenance and logistics. Tracks are thrown and clutches burn more readily, and overheating may occur. Tanks operating in the mountains need 30 to 50 percent more fuel and additional coolant.

Extensive reconnaissance is required at all times to avoid enemy antitank ambushes. During mountain warfare, tanks may double their march and prebattle formation intervals.

Tanks may precede infantry attacks but more often will support ground attacks by fire. Tanks may be attached to platoon level, one tank per motorized rifle platoon.

Mountain warfare requires additional radios as well as numerous retransmission sites. Troops may receive special clothing and rations. NBC equipment is increased, and each soldier receives a second decontamination kit.

Marksmanship and gunnery pose several problems in the mountains; for example, firing uphill, downhill, and on the slant. This is particularly important for tank gunnery, since accuracy is so dependent on flat trajectory firing.

Motorized rifle battalions often attack independently, in separate zones, because of the limited number of routes in mountainous terrain. Battalion commanders are assigned missions lasting longer than usual and receive attachments of artillery, mortars, tanks, engineers, and NBC subunits. The amount and

type of attachments vary depending on the motorized rifle battalion's mission.

Motorized rifle companies may be employed to maintain contact with a prepared enemy defensive positions, to act as an enveloping force for a battalion or regiment, or to conduct heliborne operations. The maneuver of the motorized rifle company mentioned most often by the Soviets is a flank attack or envelopment. Typical objectives include seizing critical heights, crossings, road junctions, and passes in the enemy rear and on his flanks. Motorized rifle companies normally are reinforced with light artillery, mortars, and engineers.

Whenever possible, the motorized rifle company conducts a mounted attack and moves along roads. If the initial assault is unsuccessful because of enemy fire or the inability to attack mounted, troops dismount and attempt to outflank the enemy while tank support by fire.

Attack frontage and formations depend on the terrain. In a narrow valley or canyon, the company usually attacks on a 100-to 300-meter frontage. On a mountain plateau or broad valley, the frontage may increase to 1,000 meters or more.

Mountain Attack Considerations

- Mountain attacks require more thorough coordination.
- Evaluation and exploitation of the terrain is more important.
- Artillery is more difficult to employ and has to react quickly to unseen targets.
- Air or helicopter support is tasked to hit defenders on the far side terrain features.
- Chemical agents could be used to flush out a defender from strongholds such as caves, confined areas, etc.

DEFENSIVE ACTION

Normal Soviet defensive principles are basically applicable to mountain warfare. Forces normally deploy along roads, valleys, on flat mountain tops, and on forward and reverse slopes. Maximum use is made of ravines, trenches, narrow and deep gorges, tunnels, and passageways for protection of personnel and equipment.

The motorized rifle battalion defensive sector consists of company and platoon strongpoints. These

strongpoints cover avenues of approach and provide all-round security. Particular attention is placed on tank avenues of approach. With terrain permitting, regiments and divisions maintain strong, tank-heavy counterattack forces as reserves. Battalions and companies maintain small reserves.

Natural obstacles in mountainous terrain generally permit rapid organization of a defense with relatively small forces. Unit frontages probably would be wider than normal.

Maximum use is made of the terrain, minefields, and obstacles. Gaps between strong points must be covered by organic and supporting fires, located in impassable terrain, and patrolled regularly

ARTILLERY

Fire support frequently is decentralized to support maneuver forces on independent axes. Artillery is fired by batteries or even platoons. Artillery and mortars locate forward, with flatter trajectory weapons placed on the flanks. This positioning supports extended and uneven frontages and covers gaps and dead space. Direct fire at maximum range is used as often as possible.

Movement and deployment of fire support equipment in the mountains is restricted. Firing positions normally are immediately adjacent to available roads. Helicopters can emplace mortars and light artillery. The 160-mm mortars often are employed instead of the 122-mm howitzers because of the mortar's higher angle of fire and greater mobility due to decreased weight. The 76-mm mountain gun M1966 is specially designed for mountain operations. Vehicles or animals can tow this weapon, or it can be broken down into several loads for pack animals.

Mountain Artillery Considerations

- Adjustment of fire is complicated by variations in atmospheric pressures and temperatures.
 - Dead space and terrain masking limit fields of fire.
 - Insufficient time for complete preparation of firing data may limit accuracy. Artillery may have to rely instead on the "meteorological mean."
- Sound and radar ranging are limited by dead space, shielding of sound and electromagnetic waves, and multiple reflection of echoes.

HELICOPTER EMPLOYMENT

Helicopters may be employed in the mountains for the following missions:

- Reconnaissance.
- Communications, command, and control.
- Resupply.
- Air defense, particularly against enemy helicopters.
- Evacuation.
- Artillery adjustment.
- Close air support.
- Troop lift.

Mountainous terrain degrades ground-to-air communication. Also, evasive flight techniques are used to avoid radar and visual detection. This flight method often degrades FM transmissions and reinforces the requirement for radio relay or retransmission sites.

Mountain weather tends to change rapidly and severely. Fog, frontal systems, wind, icing, and storms can easily disrupt or delay helicopter operations.

Changes in temperature, relative humidity, and air pressure, affect lift capability. Increases in any of these factors plus higher altitudes mean decreased lift capability. For a given load, the helicopter must produce extra power, which requires more fuel and increases engine strain.

Mountain winds are almost impossible to predict. On the windward side of mountains, airflow normally is steady. But on the leeward side, winds are turbulent, with strong vertical currents. Turbulence, even from moderate winds (10 to 12 knots), can seriously hamper helicopter operations. Aircrews thus require special training to minimize the hazards of strong winds. Turbulence may preclude helicopter usage or require that helicopters be flown at greater altitudes, increasing the risk of detection and enemy fire.

Besides limited visibility, low clouds and fog may cause helicopters to ice up. Ice on rotor blades results in significant loss of lift. And since ice does not break off rotor blades uniformly, severe rotor blade imbalance can occur.

Mountain terrain complicates flight route selection. Routes may not always be the most direct nor provide the best cover and concealment. Space for maneuver may be very limited and formation flying impossible. Landing zones also may be limited both in number and suitability. These factors can increase the amount of time necessary for a helicopter operation, increasing the chance for enemy observation and enemy fire. Greater intervals between aircraft also mean an additional navigational load on each aircrew and may reduce mutual support. Mountain flying puts a greater strain on helicopter crews, tiring them more and faster than usual.

Helicopter target priorities include the following:

- Enemy strongpoints on the axis of advance.
- Mortars, antitank weapons, and artillery threatening the advance.
- Counterattack forces and reserves.
- Targets on the reverse side of slopes screened from attacking ground forces.

Close air support in mountains is less rigidly controlled than over flat battlefields. Roving search-and-destroy missions are more common particularly on the reverse sides of slopes. This is a departure from the more rigid control maintained at lower altitudes.

ENGINEER SUPPORT

Engineer support in the mountains will require a greater than normal range of assets and will be more extensive and difficult to perform than over more normal terrain:

- Mountain roads and trails may require extensive construction, improvement, maintenance, and repair to withstand military traffic and severe weather condition?.
- Landing strips and helipads must be cleared.
- Preparation of cold weather shelters is necessary.
- Greater time and equipment are required to construct anything in rock.
- Materials may be difficult to obtain in the mountains, adding to the logistics burden.

Combat engineers (sappers) are attached to units attacking independently as well as to flanking detachments and heliborne assault forces. A motorized rifle battalion employed as a flanking detachment receives one or two engineer platoons. A motorized rifle company with a similar mission receives one or two engineer squads. These engineers support reconnaissance, obstacle clearance, and water and dry gap crossing.

LOGISTICS

Mountainous terrain severely handicaps all logistic operations. Road networks normally are few and in poor condition and require extensive engineer support. Supply routes are major targets, and mountains afford excellent opportunities for ambushes and attacks.

The combined problems of terrain, cold, ice, and dampness make rapid and reliable communications extremely difficult in the mountains. Not only are operational problems increased but so are problems of maintenance and supply of communication equipment.

Mountain Logistics Considerations

- Rations. Caloric requirement increases due to more strenuous activity.
- Cold-weather gear.
- Fuel. While limited road nets and steep slopes probably reduce the number of vehicles operating in the mountains, the vehicles that are employed use more fuel. Aviation fuel requirements increase as the use of helicopters increases.
- Ammunition. Indirect fire expenditures increase, largely because of difficulty in adjusting fire on steep slopes and because of the decreased bursting radius caused by firing in snow or forested areas. Quantities of explosives used in obstacle reduction may increase as much as tenfold.
- Spare parts. High consumption-rate spare parts include tires, tracks and pads, fuel pumps, brake shoes, tie rods, and transmissions.

COMMAND AND CONTROL

Since mountainous terrain restricts line-of-sight communication such as FM and multichannel radio, extensive use is made of relay and retransmission sites. However, siting communication facilities on high ground has its own problems. These include difficulties in establishing the sites, loss of communication mobility, and increased likelihood of locations being predicted or discovered and then destroyed. Wire may be used extensively, but because of mountainous areas installation and maintenance effort is greater than normal, especially in deep snow and extreme cold.

In general, Soviet command elements are echeloned in depth and dispersed over the entire frontage. They also locate as near as possible to the troops, nearer than they would be on flat terrain. For example, division main command posts may be as close as 3 kilometers from the forward edge of the battle area (FEBA). They move, at least daily, with divisional forward command elements moving every 2 hours. Division headquarters deploy on the main axis of advance.

AIR DEFENSE

In mountains, air defense is more difficult because of problems in maintaining unit integrity of both maneuver and air defense units. Comprehensive air surveillance and air defense fire support is more difficult. Air defense units operate under a greater than normal

degree of decentralization. This affects fire control down to section level. As a result, the importance of shoulder-fired surface-to-air missiles (SAMs) is greatly increased, as is the anti-aircraft role of small arms fire.

Mobile air defense systems may be unable to accompany maneuver elements. Instead they move from high point to high point along the best available routes of advance to obtain the best radar coverage, observation, and fields of fire.

NBC EFFECTS

Nuclear, biological, and chemical (NBC) effects are reduced significantly in mountain warfare because of terrain and the more rapid natural decontamination caused by changing weather conditions and constant winds. Terrain and winds hamper accurate prediction of down wind toxic agent travel. Generally, cool daytime temperatures slow the evaporation process, permitting a contamination hazard to remain longer. However, mountain winds may nullify this feature.

Mountain winds and stable atmospheric conditions enhance downwind coverage of chemical and biological agents. Temperature and humidity also affect their survivability. Cool temperatures generally favor survival of chemical and biological agents, and higher humidity increases effectiveness. Snow deposited on top of a contaminated area can increase the hazard's duration. Sunlight, however, destroys most chemical and biological agents. With little protection from the sun available above the timberline, the effectiveness of chemical and biological agents is reduced at high altitudes.

The following factors influence the effectiveness of nuclear strikes in the mountains.

- Mountain terrain reduces the casualty zone of a nuclear weapon.
- Shock wave propagation is intensified in narrow valleys and defiles opening in the direction of the burst.
- Casualties may result from rockfalls, avalanches, and landslides, which may occur at considerable distances from ground zero.
- Reverse slopes greatly attenuate the shock wave effect when the height of burst does not exceed the height of the ridge.
- A nuclear weapon may be used only when the burst will not impede the advance of friendly forces by causing rockfalls, landslides, and destruction of roads. Low-yield air bursts are considered to be the best choice of nuclear firepower.
- Irregular terrain patterns reduce the accuracy of collateral damage prediction, damage estimation, and vulnerability analysis.

- Snow melted by thermal radiation may cause flash flooding.
- Thermal radiation also may be reflected by snow and the thinner atmosphere of higher elevation, thereby amplifying its effects.
- Fallout prediction is unreliable because of the strong winds varying in speed and direction.
- Melting snow will contribute to the residual radiation pattern, possibly polluting water and bathing sources.

MOVEMENT

Mountain marches are always carried out along the most accessible routes into the area. The rate of advance in low mountains and hills may be halved, even without the additionally slowing effect of enemy action, poor weather, or natural obstacles.

Terrain restrictions often make deploying from the march impossible. Security measures are of greater concern, and surprise is more difficult to achieve. In the Soviet view, well-prepared defenders generally have several advantages over attacking units:

- The defender probably is more familiar with the terrain.
- The defender can achieve surprise more readily.
- The defender is more mobile.
- Attacks are more vulnerable.

In the offense, Soviet forces attempt to locate breaks, gaps, and breaches in the enemy's defenses and seek dead space and covert approaches to the enemy's position. Approaches may be created by reducing one or two defensive strongpoints by the heaviest available fire support and following this with a smokescreen. Flank attacks and envelopments take on even greater importance in mountains. Frontal attacks rarely are conducted without coordinated diversionary attacks on the flanks or rear. The frontal attack must have very

heavy air or artillery support if it is not supported by diversionary attacks.

Attacking directly from the march is possible only when routes and space permit combined arms deployment. Since room for maneuver and fire support, and detailed knowledge of the terrain and enemy defenses are required, attacking directly from the march will not occur often.

Attacking from positions in direct contact provides the time for Soviet commanders to make personal reconnaissance, to develop fire support plans, and to plan flanking and enveloping attacks. However, the fact that attacking forces are vulnerable to enemy fire while in their static positions is a great disadvantage.

CONCLUSIONS

Soviet military doctrine stresses speed, firepower, and shock action at all levels. However, mountain climate and terrain seldom permit even one of these offensive features, let alone all three. As a result, the Soviets have had to adjust their offensive doctrine to the mountain environment. These modifications include the following:

- Limiting the use of nuclear firepower. Since nuclear weapons create extra obstacles in the mountains, the Soviets stress the use of small-yield air bursts.
- Increasing the role of the helicopter for command, control, and communications, evacuation, resupply, close air support, artillery adjustment, and troop lift, particularly for troop placement behind enemy lines.
- Placing greater emphasis on initiative and self-sufficiency of units operating in the mountains. Combat actions are much more decentralized. Subunits are reinforced and task organized at lower levels.
- Placing artillery and mortars close to the FEBA since mountains considerably restrict their mobility.

CHAPTER 8

DESERT WARFARE

Desert terrain and its environment have the following characteristics:

- Primarily sandy or rocky desert soil.
- A shortage or complete lack of water.
- Extremely sparse vegetation.
- A small population and poorly developed road nets.
- Less than 10 percent natural masking by relief, with up to 75 percent of a given area observable from heights.
- Sudden and extreme fluctuations of temperature.
- Absence of landmarks for orientation and land navigation.
- Strong winds which blow sand and dust, resulting in decreased visibility, communications degradation; and increased maintenance problems and requirements for engines, running gear, and all types of weapons.

Lack of developed roads normally forces military movements onto open terrain. Trafficability depends primarily on the nature and condition of the ground and its use rate. While dry, loose, sandy soil can hinder cross-country movement, it can be adequate-to-good when wet. Saline soil may be rock-hard when dry but very difficult to negotiate when wet. Soil trafficable for a few vehicles may not hold up for entire columns. Columns may have to disperse over a 200- to 300-meter width. Moving sands create the most unfavorable movement conditions, as traction (even on foot), is often almost impossible to obtain. Moving sands affect trafficability, visibility, navigation, and particularly orientation.

Other factors influencing movement rates are visibility, state of driver training, efficiency of route marking, and greater need for maintenance halts. The planning and preparation of movement and combat under desert conditions are particularly critical. Movement planning includes reconnaissance, obstacle identification, route marking, and grading of elevations and descents.

The difficulty of orientation and navigation in open terrain with few landmarks, further complicated by reduced visibility, requires marking routes with stable signs that have good day and night visibility. Signs indicate the route and also warn of dangerous areas.

- Combat actions are characterized by:
- Wide frontages.
 - Wide gaps between units.
 - Frequent independent operations by regiments or battalions.
 - Increased logistic requirements.
 - The need to control (in both offense and defense) water sources, inhabited areas, developed roads, railways, and particularly junctions and airfields.

THE OFFENSE

The 1973 Arab-Israeli War impressed on the Soviets the need for full combined arms cooperation in desert warfare. They pay particular attention to suppression of enemy antitank and air defense weapons.

Reconnaissance is conducted across a broad front, on many axes, and in depth. It must identify gaps in enemy defenses, and the best directions of attack.

Maintaining orientation in the desert is a special problem. The basic method of off-road navigation is movement on an assigned azimuth. This is supplemented when possible by reference points, elevations, and rare identifiable features such as wells, canals, and buildings.

Control measures for movement normally include detailed designation of:

- Routes and marking methods.
- Available landmarks.
- Formations to insure security for flanks and rear.
- Added communications to support wide dispersal.
- Location of water, fuel, and supply points,
- Axes of attack and march routes.

Some Soviet vehicles are equipped with directional gyroscope systems that permit holding the required

Desert Movement

TERRAIN CHARACTERISTICS

Sandy hills, loose sand, shale
Sandy valleys
Clav-surfaced desert

ESTIMATED SPEED OF MOVEMENT

DAY	NIGHT
7-8 kmph	5-6 kmph
10-12 kmph	8-10 kmph
24-26 kmph	22-24 kmph

direction for 1.5 hours with no greater than a 2 degree error. With careful adjustment, these systems can be used up to 5 hours without orientation.

Since the desert offers few handicaps to maneuver, attacks normally are carried out from the march and at high speed. In general, offensive tactics are the same as described in FM 100-24. However, frontages normally are wider, with gaps being accepted, and objectives are at greater depth. Regiments attack on separate axes. They are reinforced with sufficient support assets to allow independent action. Motorized rifle battalions also may operate independently.

Forward detachments are employed to penetrate gaps in enemy defenses and carry out harassing attacks in enemy rear areas. Airborne or airmobile forces may seize objectives in depth, normally at night.

Frontal attacks in the desert against prepared defenses historically have proven unsuccessful. Therefore, the Soviets generally conduct mounted attacks against the flanks or rear of enemy defenses. When this is not possible, dismounted infantry may be used to create gaps, which then are exploited by tanks.

THE DEFENSE

Defense in the desert is difficult due to open terrain, lack of cover and concealment, wide frontages, gaps between defending units, and reliance on local water sources. The attacker probably will probe constantly and attack when visibility is reduced.

Soviet defenses are organized in greater depth. Distances between echelons are greater and forces more dispersed. Reserves, mainly tank-heavy, are held in greater depth than usual and may be employed to counter enemy enveloping and encircling movement. Motorized rifle company and battalion frontages in the forward area are similar to those in the normal defense. Motorized rifle companies normally organize in a single echelon. Divisions and regiments may defend independently. Mined sectors, and areas of limited trafficability may be lightly defended. They may be covered only by mobile patrols or outposts.

Since the possibility of a night attack is greater in the desert, the night defense requires.

- Maximum use of night-vision devices and electronic surveillance.
- Forward repositioning of tanks after dark, with tank fires and antitank weapons fires concentrated on roads and likely avenues of approach.
- Intensive patrolling and many observation and listening posts.
- Carefully prepared counterattack plans and routes.

CAMOUFLAGE

Due to sparse vegetation, deserts generally afford little natural concealment and even less means for camouflage. Forces are particularly vulnerable to observation, especially from aircraft, radar, and heat detection. As a result, camouflage in the desert is of increased importance but is also much more difficult to accomplish.

The Soviets use camouflage paint designed to blend equipment and vehicles in with their background and to break up outlines. The following measures are used to screen movement and attacks:

- Cover of darkness.
- Bad weather, especially sandstorms.
- Smoke.

Smoke also may be used to conceal firing positions. A supported unit sometimes uses smoke as reference points in artillery adjustment and control of movement. (For more information on smoke, see FM 100-2.1.)

HELICOPTER EMPLOYMENT

Helicopter employment in the desert is hindered by

- Increased maintenance requirements.
- Lack of cover and concealment.
- Low air density.
- Higher degree of pilot training required.
- Low-level navigation is more difficult in the desert since reference points are few.

LOGISTICS

Desert operations place special strains on logistics due to:

- Great dispersion of supported units.
- Greater maintenance requirements.
- Limited concealment and cover, making logistic facilities easier targets.
- Increased requirement for water and fuel.

Soviet commanden operate well forward and are highly mobile. Communications may be affected by desert weather and atmospheric conditions. Artillery units must be highly mobile to keep up with support units and to reduce their own vulnerability.

NBC EFFECTS

Desert terrain affects the behavior and influences the deployment of nuclear, biological, and chemical weapons. Because of the relative flatness and lack of vegetation, chemical and radiological effects are comparatively even and steady in all directions.

Nuclear weapons employment normally results in considerable dust clouds which remain in upper air levels for many hours. High temperatures decrease air density, enabling nuclear blast waves to move faster. Greater levels of perspiration may increase the effectiveness of some chemical agents.

Air instability (a result of temperature variations at various levels of the air) greatly affects all NBC agents. As a general rule, the air is more stable and more suitable for NBC employment during the cool of desert nighttime than during the heat of the afternoon. During the afternoon, for example, the instability of the air may cause rapid and irregular dissipation of chemical or radioactive clouds. High desert winds may affect the distribution patterns of chemical and nuclear clouds as well as dissipate their effects.

Nuclear blasts, even from air bursts, raise considerable quantities of sand and dirt which inhibit observation and maneuver. This effect and the

atmospheric disturbance caused, are particular threats to helicopters.

Nuclear radiation patterns vary widely depending on weapon yield, wind, and the magnesium, sodium, salt, and silicon content of the terrain. Thermal radiation effects are greater than normal since there is usually less terrain masking in the desert than elsewhere.

High desert temperatures increase the incapacitating effects of liquid agents close to the target. Air instability, wind, and faster evaporation rates cause most chemical agents to dissipate relatively quickly and irregularly. High desert temperatures may kill most biological agents.

Individual protective clothing can be worn in high temperatures for only short periods of time without risking heat illnesses and dehydration. Wearing of individual protective clothing also results in less efficient physical activity. Rest breaks become more important, and water consumption increases.

CHAPTER 9

COMBAT IN EXTREME COLD

The Soviet Army is well prepared to operate under extremely cold conditions. Because of Soviet geography and climate, over 60 percent of Soviet divisions are located in and train in areas subject to extreme cold at least part of the year.

The Soviets recognize the following effects of extreme cold on military operations:

- Tactics must be modified to accommodate restrictions on movement.
- Human and mechanical efficiency are reduced considerably.
- The importance of shelters is increased.
- Construction of defenses is hindered by frozen earth.
- Swamps and rivers become passable.
- Deep snow reduces the effectiveness of high-explosive shells, mines, and nonpersistent gas while increasing the thermal radiation effects of nuclear explosions.
- Vehicles are more difficult to operate and maintain.
- Electromagnetic anomalies and storms disrupt communications.
- Deep snow makes orientation difficult.
- The range of bullets and shells is reduced.
- Fluid medical supplies, such as plasma and morphine, will freeze if not well protected.
- Air support is restricted.

PLANNING AND PREPARATION

Soviet preparations for operations in extreme cold include:

- Special clothing and equipment, particularly heavy winter overcoats, hats, fur-lined mittens and felt boots.
- An enriched, high-calorie diet with hot food and drink provided as often as possible.
- Warming tents and shelters provided whenever possible.
- Special oils and lubricants for vehicles and crew-served and individual weapons.

In extremely cold weather, the Soviets use special fuel mixtures, oils, and lubricants. Vehicles also are fitted with special winterized couplings on fuel pumps, engine heating and cooling systems, and exhaust systems. Batteries also receive special attention. Heaters and warming covers aid in starting vehicles.

Wheeled vehicles carry chains and are positioned behind tracked vehicles in march columns whenever possible. Sandbags, mats, cables, and pioneer tools also

add to over-the-snow capability. Tanks carry logs or beams for use as traction aids. Wheeled vehicle tire pressure is reduced to aid mobility. March columns include tanks with dozer blades, snow-moving equipment, and road graders.

No special organizations for winter or arctic warfare are known to exist in the Soviet Army. However, for at least part of the year, most Soviet divisions train in cold or extremely cold conditions. Individual training stresses ski-drawn movement behind tanks and APCs, cold injury prevention, equipment care and cleaning (especially weapons), and camouflage. Skiing is particularly stressed.

THE OFFENSE

Attack frontages are probably larger in snow because of the difficulty in maneuvering. Reserves are also probably larger than normal.

Troops may attack on skis or sleds towed behind tanks. On reaching the assault line, troops release tow cables or ropes and form an assault line, making a coordinated attack with the tanks. When tracked vehicles are used to tow infantry on skis, tanks can tow two squads and APCs can tow one. Soldiers are expected to be able to fire their weapons while being towed.

In deep snow (defined as 1.5 to 2 times the ground clearance of vehicles), troops may attack mounted on tanks. Pursuit may be conducted by tank-home infantry (if snow conditions or lack of roads preclude use of APCs) or on skis.

In cold weather, attack assembly areas are located closer to the enemy than usual. This lessens approach distances and therefore minimizes fatigue and cold-injury exposure time. Second echelon and reserve forces follow closer than normal to reduce commitment time.

THE DEFENSE

The Soviets attempt to use adverse weather to their advantage. They delay the attacking enemy and deny him shelter, thus prolonging his exposure to the cold.

Populated areas and forests provide shelter and often are used as strongpoints. The strongest defensive positions are located along most likely avenues of approach—roads and areas of light snow. Snow is used to conceal strongpoints as much as possible. Parapets of packed snow are built around weapons and vehicles.

Snow may also be packed on upper portion of combat vehicles to aid in concealment.

Defense positions not under enemy attack may be occupied by no more than a third of the fighting strength. The remaining troops occupy warming shelters. This permits the majority of troops to be at peak efficiency in the event of an attack.

LOGISTICS

Limited mobility handicaps logistic efforts in very cold weather. Soviet doctrine calls for moving stores far forward in the offense and stockpiling in the defense. It stresses proper road maintenance for both the offense and defense.

FIRESUPPORT

Artillery support in extreme cold is affected by difficulty of survey in deep snow and under conditions of poor visibility. Movement and firing site preparation are also more difficult. Low temperatures increase the brittleness of metal and make grease and lubricants less viscous. These factors may cause damage to moving parts (particularly the recoil mechanism

during firing). Mortar base plates may crack or even break. Because deep snow greatly reduces the bursting radius of projectiles, the number of rounds required for target coverage increases. At the same time, the rate of fire decreases due to additional preparation time of ammunition and maintenance of the weapons. Range estimation against a snowy background makes adjustment of fire more difficult. Many problems associated with fire support in extreme cold can be overcome or significantly reduced by the use of high technology equipment. This includes land navigation systems, ground surveillance radars and laser range finders. The Soviet Army most likely has or is developing this technology.

ENGINEER SUPPORT

Severe weather conditions complicate engineer activities and require greater effort and more assets than normal. Additional engineer tasks include:

- Preparing routes and assembly areas.
- Preparing shelters, cover, and defensive positions.
- Preparing artillery firing positions.
- Clearing paths through obstacles.

Movement In Extreme Weather

MARCH RATES IN EXTREME COLD

Infantry (snow less than 30 cm deep)	3-4 kmph
Infantry (snow over 30 cm deep)	1-2 kmph
Soldier on skis	6-8 kmph
Subunit on skis	3-6 kmph
Tracked vehicles	18-24 kmph
Tanks and APCs in:	
■ Snow under 50 centimeters	Employed as usual
■ Snow 50-75 centimeters	(short moves) 10
■ Snow over 75 centimeters	Restricted to roads or cleared routes

DISTANCES COVERED IN ONE DAY'S MARCH

Infantry	12-24 kilometers
Ski Unit	32-40 kilometers
Tracked Vehicles	96-112 kilometers

THICKNESS OF ICE REQUIRED FOR PASSAGE

Infantry	10 centimeters
Medium Tanks	70 centimeters

CHAPTER 10

COMBAT IN CITIES

Although their doctrine stresses speed and dynamic maneuver, the Soviets fully realize that movement through urban areas may result in greater ammunition expenditures and casualties and slower rates of advance. The Soviets have long acknowledged that combat in cities will be unavoidable at times. Given urbanization trends in Western Europe, combat in cities could be more the rule than the exception in that area.

Soviet ground forces consider combat in cities to consist of only those missions conducted in heavily populated cities and towns. Combat in isolated villages or groups of buildings along roads in agricultural or open areas are considered actions in or against strong-points and are outside the scope of this chapter.

The Soviets classify towns and cities according to shape, population, and perimeter. The Soviets calculate that in Europe there are one or two small cities for every 200 to 300 square kilometers of terrain. In a European conflict, there is potential for involvement in combat in cities on the average of every 40 to 60 kilometers.

The decision to attack a city or town may be politically, strategically or tactically motivated and normally is made at army level or above. Tactical reasons for attack may include:

- The city or town is key terrain.
- The area encompasses vital communications crossings.
- It is necessary to protect an exposed flank.
- It serves as a diversionary operation.
- It would tie down enemy troops and reserves.
- The built-up area is unavoidable due to the extent of urbanization.

In the offense, the Soviets plan for their lead echelons to cut off and to destroy enemy forces before they can occupy cities. If this is not possible, the Soviets plan to bypass pockets of resistance with leading echelons and continue the advance. Bypassed enemy-held areas are sealed off and may be neutralized by following echelons.

DOCTRINE

Soviet principles for offensive combat in cities at division level are:

- Conduct initial attacks from the march, after reconnaissance.
- Launch attacks from positions in contact with the enemy if initial operations fail to make progress.
- Decentralize command and control to the maximum possible extent.
- Maintain continuous pressure on the enemy through day and night combat.
- Conceal movement through the use of smoke, darkness, or low visibility.
- Integrate company-sized tank, motorized rifle, and combat engineer assault groups with the direct support of antitank guns and the direct and indirect support of artillery and mortars.

While combined arms assault groups provide the main effort during combat in cities, heliborne assaults on key points may be used. Helicopters may lift motorized rifle troops to key points in the battle area. During combat in cities, a Soviet division normally attacks in two echelons at each level of command with the following frontages:

- Division 4 to 6 kilometers
- Regiment 2 to 3 kilometers
- Battalion 400 to 600 meters
- Company 200 to 300 meters

Main axes are along major roads to capture key areas, to disrupt the defense, and to cross the area in the shortest possible time. Division and regimental axes are major roads. A battalion might advance on two or three parallel streets, with one company axis per street.

Combat on such restricted frontages and axes of advance, results in the following significant control problems:

- Difficulty in coordinating attacks progressing at different rates with fire support.
- Communications problems caused by a large number of VHF radios operating in close proximity and being screened by building?.

Soviet Classification of Urban Areas

POPULATION	SIZE CLASSIFICATION	ESTIMATED PERIMETER
100,000 or more	Large	More than 25 kilometers
50,000 to 100,000	Average	15 to 25 kilometers
Less than 50,000	Small	Less than 15 kilometers

- Identification of targets and coordination of fire against targets in depth.
- Logistic problems, particularly the resupply of ammunition, which may be used at an extremely high rate in intense combat.

The commander determines force size and composition based on the area's size, shape, building type, and

street patterns as well as the strength of defending forces. Attacking forces are not evenly distributed around the built-up area. They are employed over the most favorable avenues of approach. Because of the manpower-intensive, close-combat nature of combat in cities, motorized rifle rather than tank units are preferred. Normally, regiments coordinate the attacks and

Tactics and Analysis

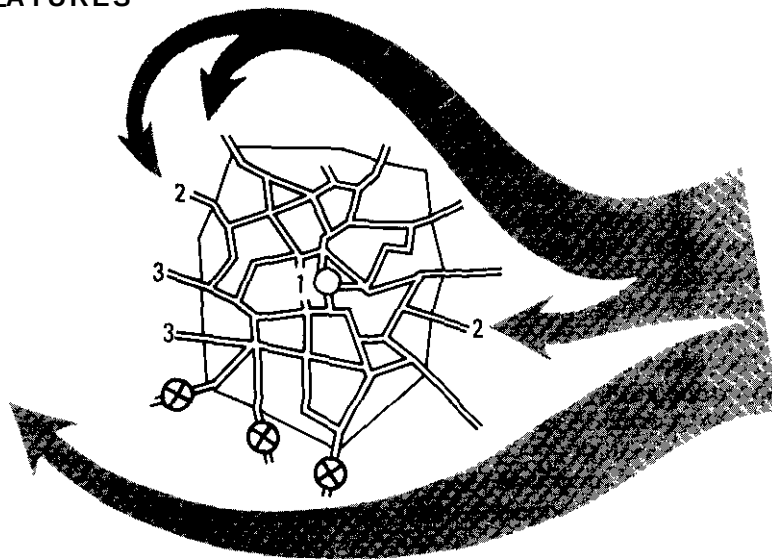
REPRESENTATIVE TACTICAL FEATURES OF CITY ATTACK

(Main Force bypasses. Second echelon forces execute frontal holding attack and attack from rear.)

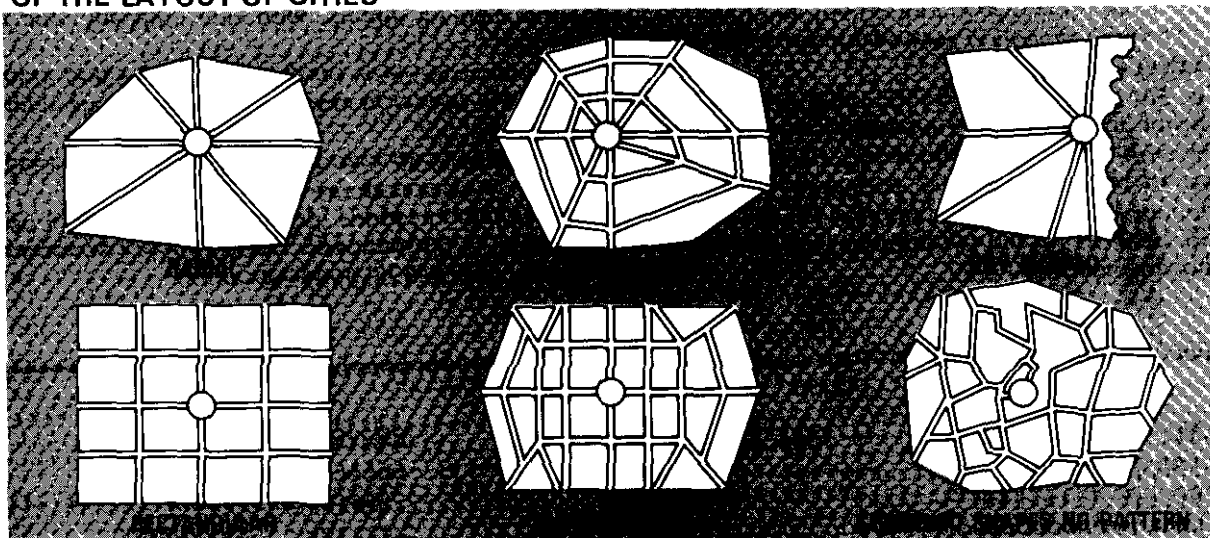
LEGEND:

1. Forward detachment operating in advance to seize critical bridges, junctions or installations.
2. "Reconnaissance by battle." Probing attacks to determine defensive positions.
3. Withdrawal routes blocked by tank elements or airlanded forces.

⊗ Mobile obstacle detachments block withdrawal routes and protect main force flanks.



SOVIET ANALYSIS OF THE LAYOUT OF CITIES



battalions conduct them. Division and regimental resources reinforce the battalions as required. Individual battalions may have a variety of missions, depending on the situation. Reserves are created at regimental rather than division level.

Motorized rifle battalions may be employed in either the first or second echelons of an assault on a city or town. In either case, their organization, tasks, and assault tactics are probably the same.

In combat in cities, the Soviets call their assault battalions "assault detachments." They are organized into two echelons. Each company is formed into an "assault group." A typical combat organization for an assault group is:

- A motorized rifle company.
- One or two tank platoons.
- Antitank guns.
- An artillery battery, in the direct fire role.
- A combat engineer platoon.
- Flamethrower and chemical specialists.

Besides the fire support on hand at company level, the battalion commander normally has artillery and mortar units under his control to give indirect fire support to his assault groups. Indirect fire weapons are employed to destroy enemy strong points and to neutralize enemy reserves.

Assault groups are task organized. A representative assault group may include:

- Attack or seizure groups consisting of a motorized rifle platoon reinforced by tanks.
- A covering and holding group consisting of up to a motorized rifle platoon reinforced by antitank guns.
- A fire support group which includes attached artillery in the direct fire role and flamethrowers.
- A group of combat engineers equipped with bangalore torpedoes and mine clearing devices.

One or two motorized rifle squads may be used as a reserve force to either strengthen attacking or holding groups or to carry out a contingency task. Tank units are used to:

- Serve, with combined arms reinforcement, as an advance guard in the approach to the city.
- Cut off or envelop the enemy before he reaches the built-up area.
- Envelop the city.
- Reinforce infantry in street fighting.
- Serve as a mobile reserve.

Artillery is decentralized during offensive combat in cities. The commander may attach up to 50 percent of available artillery to assault groups to be used in the direct fire role. The remainder is organized into an artillery group to provide on-call indirect and counterbattery fire. Howitzers and mortars are used for

counterbattery tasks. Preparatory fires are shorter than normal, 5 to 20 minutes being the historical precedent.

The missions of engineer subunits accompanying assault groups are engineer reconnaissance, destruction of buildings, mine clearance, and clearing routes of rubble to allow movement of tanks, APCs, and artillery.

Antiaircraft weapons, both handheld and crew-served, are used to cover artillery firing positions and commanders' observation posts against low-flying aircraft and helicopters. When not engaged in this primary role, they suppress enemy ground fire.

Unlike combat in more open terrain, the Soviet doctrine stresses decentralized control in combat in cities. This puts a heavy burden on the battalion's communication systems. However, only through decentralization can they cope with the tactical problems of controlling troops fighting in close quarters.

It is unlikely that nuclear weapons would be used within a city. Extensive destruction and contamination would only hinder offensive progress. They may, however, use nonpersistent chemical weapons because of their potential for human destruction without causing material damage.

The Soviets can be expected to use psychological warfare, including threats, promises, misinformation, and rumors. These would be directed against both military defenders and the civilian population.

THE OFFENSE

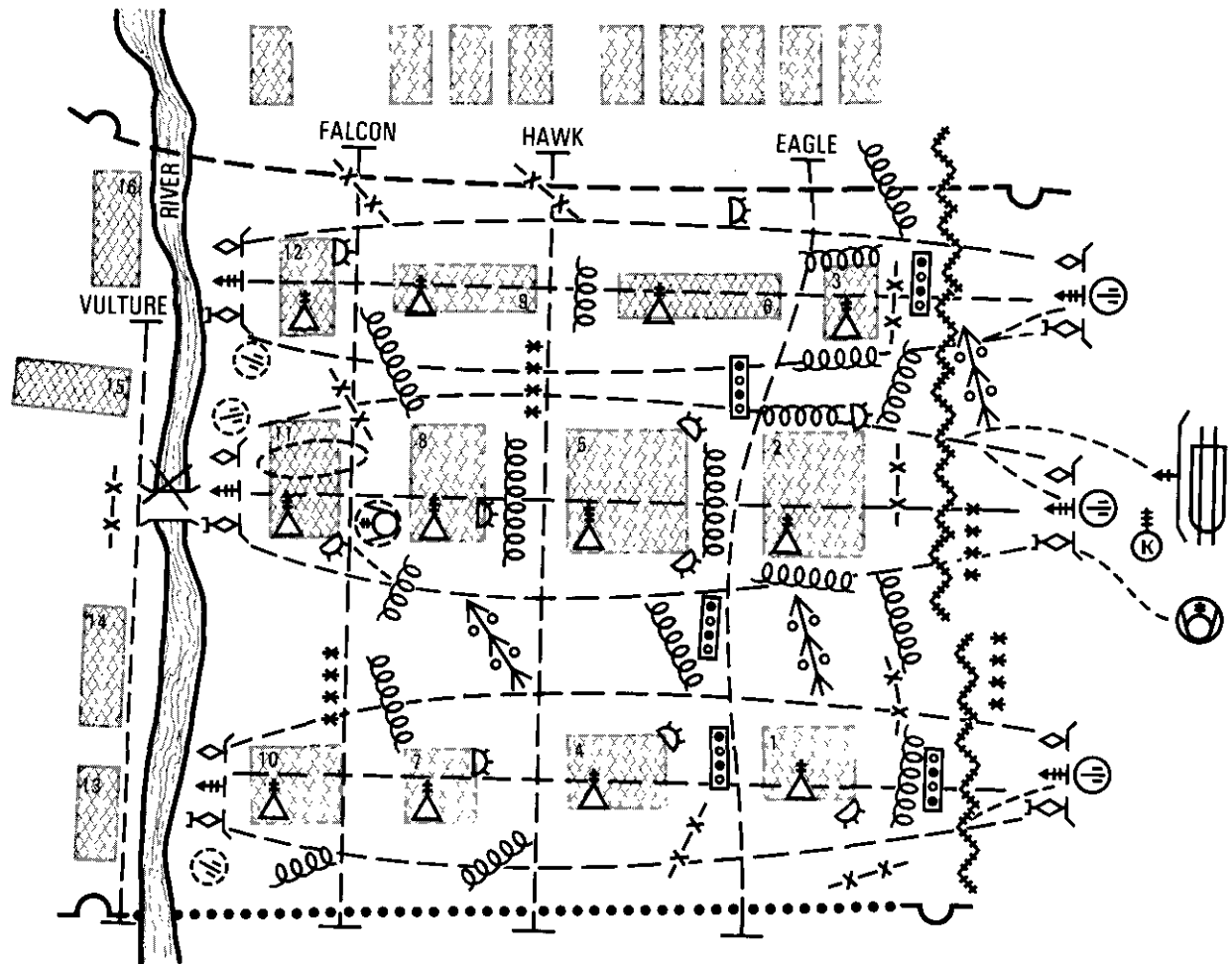
Combat in the cities imposes demands for a slower pace and tempo of attacks; longer duration of commitment; shorter, intense preparatory fires; and specially tailored forces. Soviet tactics reflect these concepts.

Initial reconnaissance of a target urban area is made following study of large-scale maps, aerial photographs, and background intelligence reports. Tactical intelligence will update such background data from long-range reconnaissance patrols, agent reports, aerial reconnaissance, and signal intelligence. When required, task-organized reconnaissance groups drawn from motorized rifle and tank units reinforce divisional and regimental reconnaissance.

The specific mission of reconnaissance units and groups from division and regiment is to identify:

- Enemy deployments outside the built-up area.
- Strongpoints within the city.
- Command posts and communications centers.
- Reserves.
- Enemy withdrawal routes and successive defensive positions.

Reinforced Motorized Rifle Battalion Attack Through a City



LEGEND:

	Regimental boundary		Mortar battery (120mm)		Mined barricade
	Battalion boundary		Truck-mounted bridge		Portable obstacle
	Motorized rifle company reinforced by tanks in the attack		Mine-sweeping tank equipped with mine-clearing roller		Blockhouse
	Motorized rifle platoon in the attack		Battalion commander		Destroyed bridge
	Battalion commander's command post		Control line		Barbed wire barrier
	Company commander's command post		Mixed minefield (ant, personnel and antitank)		Antitank hedgehogs
	Artillery battery in firing position		Concertina wire obstacle		Buildings (most structures are of stone)

On receiving his orders from the regimental commander, a battalion commander clarifies his mission by studying his superior's concept of attack. He immediately gives his subordinates a warning order containing the battalion's mission, with his guidelines for its completion. The battalion commander then makes his estimate of the situation. He assesses the enemy, the need for reconnaissance missions, the battalion's combat organizations, tasks for his own troops, and terrain. Using large-scale maps and aerial photographs, the battalion commander studies the objective area and assigns tasks to individual assault groups.

If time and situation allow, the battalion commander conducts a terrain reconnaissance of his objective, from a suitable vantage point. The assault group commanders accompany him, and they coordinate on-the-ground reference points and targets for supporting weapons. During this reconnaissance, the commander selects and defines departure lines and unit boundaries.

The battalion commander and his staff prepare the attack order, which includes:

- Objectives to be seized.
- Approach routes, lines of departure, and phases (lines) for assault.
- Method of assault of individual buildings and blocks.
- Actions of flanking units.
- Method of destroying bypassed groups of enemy.
- Details of fire and movement.
- Details of smoke, chemical, and flamethrower use.
- Locations of command posts and control points and the procedure for moving them forward during the attack.

Control of battalion offensive tactics in cities differs significantly from combat in open terrain. Company-sized assault groups attack concurrently and independently. A major reason for decentralization is the greatly restricted area of observation and radio transmission range. The Soviets pay particular attention to the difficulties of coordinating indirect artillery fire.

The battalion command observation post is located 200 to 300 meters behind the assault groups. The battalion commander personally assigns indirect fire missions to the artillery commander, who is collocated with him. The Soviets believe that the battalion commander, by staying as far forward as possible, can personally influence the conduct of an attack.

Preparatory indirect artillery fire against urban targets is intensive but short, normally lasting only 5 to 20 minutes. Tactical aircraft attack enemy reserve positions, artillery emplacements, and communications centers. As assault units reach a safety line,

artillery fire is shifted to the enemy rear. Smoke is used to conceal approach routes.

Canals and rivers that flow through cities pose significant obstacles to the attacker. Accordingly, reconnaissance elements identify likely crossing areas and standing bridges which are designated as priority objectives. Assault crossing parties with tank-launched bridges may be positioned well forward in attack units.

After destroying strongpoints at the edge of the city, assault groups move forward on major roads toward the center of the city. Smoke may be used to cover flanks or conceal forward movement. Infantrymen carry up to twice the normal allocation of ammunition to compensate for high intensity of fire. If resistance is light, the Soviets may move infantry forward by mounting them either in APCs or on tanks. Most common, however, is for infantry subunits to move on foot along streets, clearing buildings one by one. Where necessary, they clear houses by simultaneous assaults from roof and ground floor. They also use automatic weapons and grenades extensively. Combat engineers attached to assault groups make entry and exit holes through masonry walls. They make maximum use of underground passages. Specially assigned teams follow up assault groups to destroy small enemy parties that survive the initial assaults.

Tanks are used to support infantry and to neutralize enemy strongpoints. Soviet doctrine calls for strong reserves of tanks at both battalion and regimental levels.

Tactics for fighting at night remain basically the same as those used by day. The Soviets try to maintain the same attack intensity at night. Illumination is used both as an aid to their own troops as well as a means to blind the enemy.

The battalion second echelon is used to exploit the success of first echelon assault groups. Normally, the regimental commander gives the order to commit the battalion second echelon to the assault. It may leapfrog through first echelon subunits already in contact with the enemy. Occasionally, the second echelon must complete the task of first echelon subunits.

THE DEFENSE

The Soviets regard cities as military, political, and economic centers that are probable targets for an enemy nuclear strike. Accordingly, they plan to establish their defensive positions on the approaches to the city whenever possible. This allows the Soviets to use ordinary field defensive tactics, which are more economical in manpower and equipment. However,

there are circumstances that may dictate defense within a city. They are:

- To stop an enemy offensive in which a city is the objective.
- To defend a port or naval base.
- To defend a key political or economic base.

Soviet troops in contact with the enemy are most likely to set up the defense of a city after an unsuccessful meeting engagement or attack, during a withdrawal, or when a tactical stalemate has been reached. The Soviets regard such a forced defense as a critical point in combat that could cause the transition from nonnuclear to nuclear warfare.

Defense of a city when not in contact with the enemy gives time for reconnaissance and building of fortifications. Units operating well beyond the outskirts of the city protect the preparations. A defense of this type may be setup to protect a military base, a port, or an economic, political, or transportation center. Rear echelon units or reserves usually accomplish the defense of such areas.

The Soviets consider the city's layout and types of structures, the time of year, and the climate important in the planning of the defense. The Soviets experienced these factors in World War II, and they are a pervasive influence in current Soviet military theory and practice.

The Soviet concept of defense in cities is to draw enemy manpower and equipment into kill zones and to destroy them. The tactics and weapons systems used depend on the situation and terrain. A key principle at the operational level is to include an urban area in a larger zone of defense. In this way, the Soviets hope to give commanders sufficient maneuver room to maximize the delivery of firepower—especially that of tanks—and so to inflict the heaviest possible casualties on the enemy.

The Soviets try to canalize enemy movement into the defended zone of a city by strongly held positions on the flanks. The use of nuclear and chemical weapons to create contaminated areas on the flanks can achieve the same ends as physically occupying positions and expending enormous amounts of conventional firepower. Soviet doctrine calls for control of the rate of enemy advance by launching local counter attacks. The enemy is to be defeated and repulsed on the outskirts, if possible. The Soviets plan to allow the enemy to engage in close combat in the center of the city only as a last resort.

A motorized rifle battalion normally defends as part of a regiment. The battalion may be placed in either the regimental first or second echelon of defense. In the first echelon, its mission is to prevent penetration of

the built-up area. In the second echelon, its mission is to contain an enemy penetration and restore first echelon positions. There is a degree of tactical flexibility within these missions in that battalions may find that the direction of enemy assault has changed a primary approach into a secondary one, or vice versa. Battalions positioned on primary approaches have smaller frontages than those placed on secondary ones. The mission of a reserve battalion is to reinforce or replace battalions in the first or second echelons or to cover gaps created in the defense by enemy use of nuclear weapons.

A motorized rifle battalion usually holds a number of company strongpoints. It is reinforced by tanks, anti-tank guns, and artillery employed in the direct fire role. Other artillery and mortar units also provide indirect fire support.

The defense in both the first and second echelons consists of a series of company-sized strongpoints. Each company is reinforced by tanks and artillery according to its mission and the tactical situation. Although the maximum frontage of a strongpoint is about 200 meters, the exact frontage and depth of the battalion depend on:

- The echelon.
- The combat strength of the battalion.
- The estimated strength of the enemy.
- The layout of the city and the types of buildings.

A company of tanks normally is attached to a motorized rifle battalion defending in a city. The company is employed either as platoons or as single tanks set in ambush positions. Tanks may be used in a mobile role with two or three alternate positions for each tank, or they may be employed in a stationary role to reinforce the antitank defense. On the outskirts of the city, tank units channel enemy forces into the kill zone or conduct counterattacks to slow the enemy rate of advance. Tank ambush positions are set up in the villages beyond the city limits as well as on the outskirts of the city proper.

Motorized rifle battalions receive up to 50 percent of divisional artillery, including heavy artillery, to be used in a direct fire role. Artillery pieces are emplaced either singly or as platoons and come under the command of the motorized rifle company commander. Each gun has two or three positions. The artillery remaining under direct control of the regiment or division is emplaced in covered positions outside the city and delivers indirect fire on request. Antitank guns are under the direct command of the motorized rifle battalion commander. Smoke conceals the movement of troops and equipment within strongpoints and the movement of reserves between them.

This tactical map depicts a city grid with various military units and objectives. The map is divided into several sections, each containing different elements:

- 1ST MRC (Main River Crossing):** Located in the bottom left, it features a large building labeled 'РПР' (Rural Police Point) and a smaller building labeled 'ПТН' (Police Training Center). It also includes a 'RESERVE' area and a 'БЗП' (Base of the Police).
- 2ND MRC (Main River Crossing):** Located in the top left, it features a large building labeled 'РПР' and a smaller building labeled 'ПТН'. It also includes a 'RESERVE' area and a 'БЗП'.
- 3RD MRC (Main River Crossing):** Located in the bottom right, it features a large building labeled 'РПР' and a smaller building labeled 'ПТН'. It also includes a 'RESERVE' area and a 'БЗП'.
- PARK:** Located in the center, it features a large building labeled 'РПР' and a smaller building labeled 'ПТН'.
- RESERVE:** Located in the middle right, it features a large building labeled 'РПР' and a smaller building labeled 'ПТН'.
- Other Features:** The map includes various symbols for buildings, roads, and terrain. It also features numbered points (1-7) and letters (A-M) indicating specific locations or objectives.

	Tank		Battalion ammunition supply point		Company medical point		Portable obstacle
	122mm howitzer		Battalion refueling point		Artillery concentration (numbered)		Concertina wire obstacle
	Mortar battery (120mm)		Battalion food supply point		Artillery barrage (lettered)		Mixed minefield (antipersonnel and antitank)
	Company commander's command post		Battalion technical observation point		Barbed wire barrier		Company ammunition point
	Battalion commander's command post		Battalion medical aid station		Mined barricade		Buildings (most structures are of stone)

A combat engineer platoon may be attached to a battalion and normally remains under the centralized control of the battalion commander. Engineer duties are:

- To lay mines and prepare obstacles.
- To prepare for the demolition of buildings and clear fields of fire
- To create passages through buildings for covered movement in and between strongpoints.
- To carry out emergency rescue work.

Chemical defense specialists are attached to the battalion to monitor chemical and radiological hazards. They also preform decontamination after nuclear or chemical attack.

Aviation is used in ground attack to destroy enemy nuclear delivery systems, break up enemy attacks, and neutralize enemy forces attempting to bypass the city. In addition, aviation has the mission to destroy enemy aircraft used in close support of ground combat.

According to Soviet sources, tactical air defense requirements for combat in cities include a much more restricted use of air defense weapons due to the close, confined nature of combat in a built-up area. Smaller, lighter antiaircraft artillery can be deployed in open spaces such as parks, major intersections and on flat roofed buildings. Manportable surface-to-air missiles (SAMs) can be used in a similar role. But the larger SAMs, which depend on their engagement radars, may find the built-up area highly restrictive or impossible to operate in effectively. Air defense assets may be deployed on the more open, peripheral areas of cities along likely avenues of approach by hostile aircraft.

Before establishing a battalion defense, the battalion commander conducts an estimate of the situation including the following:

- Enemy maneuver areas and approaches to his position.
- Probable enemy nuclear and conventional targets.
- Length of projected stay in the defensive position.
- Support required from attached and flanking forces.
- Stockpiling ammunition, food, medical supplies, and water.
- The structure of buildings and likely areas of defense.

The battalion commander then locates the defending companies' strongpoints and supporting detachments, observation posts, and kill zones. The battalion commander's order contains the following basic elements:

- The mission and reinforcement of each company.
- Sectors of fire and areas of concentrated fire.

- Boundaries and detail of flank protection.
- Reserve responsibilities.
- Tasks of supporting tanks and artillery.
- Engineer duties.
- Security arrangements.
- Defense measures and warnings against nuclear and chemical weapons. The battalion commander ends his order with details of fire coordination.

In organizing the fire plan, the battalion commander positions his tanks and antitank weapons at the edge of the town. After the initial antitank battle, remaining weapons are withdrawn to prepared positions within the built-up area. A few antitank guided missiles (ATGMs) may be relocated to successive firing positions within the city. ATGMs are not suited for firing at close-range targets because of their minimum range limitations. Tanks and antitank weapons cover major roads, parks, and squares. Artillery and mortars cover possible enemy approaches. Selected artillery alternate positions allow the guns to be used in the direct fire role. The guns cover lines or areas in natural or engineer obstacles. Besides the firepower under the direct command of the battalion commander, the regiment also has an indirect fire support plan. The weapons remaining under division and higher control are located outside the city to facilitate their redeployment. Air strikes from tactical aviation, including both fixed-wing and helicopters will also support ground forces.

A reinforced motorized rifle battalion deploys in one or two echelons, depending on the size and layout of its assigned sector. A reserve of one or two platoons normally is created when the battalion deploys in a single echelon. When the battalion deploys in two echelons, the mission of its second echelon is to hold a position and to destroy by counterattack any penetration of the battalion's first echelon. Such counterattacks may be carried out in conjunction with either battalion or regimental reserves.

The company creates strong points in buildings and prepares for all-around defense. Doors and windows that are not required for use are filled with bricks or sandbags. Holes for firing hand held weapons are knocked through walls. The troops mine, barricade, or destroy stairways. Access between floors is achieved by cutting holes through the floors and using ropes or ladders. Covered communication routes by underground passage connect the strongpoints. Food and water are stored in strongpoints in places where they will be protected from nuclear or chemical contamination. weapon systems locate on different floor levels to cover dead space. Snipers are positioned on roofs and in attics.

The gaps between strongpoints, streets, and open areas are mined and obstacles set up. Bridges over rivers and canals are either destroyed or prepared for demolition. Buildings are blown down both to clear sectors of fire and to create obstacles for enemy armor.

The Soviets stress the importance of fire fighting during combat in cities. They point out that combustible material should be removed from strongpoints, as it can lead to gaps being made in the physical defense. Besides the fire hazard, continuous monitoring is kept of the chemical and biological hazard. Layers of warning systems encompass all means of communication within the company strongpoints. Chemical specialists also accompany patrols forward of the main defense.

Battalions obtain intelligence from observation and listening posts, adjacent units, and the regimental staff. While in defensive positions on the outskirts of the city, APC-mounted reconnaissance patrols are sent out to maintain contact with the enemy. When combat moves into the city, foot patrols remain in contact with the advancing enemy. Ambushes are prepared on the most likely enemy approaches to maintain security and to gain tactical information.

The defensive fire plan is designed to separate enemy infantry and tanks. Artillery breaks up enemy formations approaching the built-up area. Fires are used on the enemy's flanks to canalize movement into kill zones.

A mobile covering force engages enemy reconnaissance and lead units before they reach the edge of the built-up area. The covering force maneuvers to meet the enemy threat as it develops, while combat remains on the outskirts of the built-up area. Once enemy pressure intensifies, the covering force withdraws and takes up a prepared defensive position.

Once the enemy reaches the edge of the built-up area, the Soviets recognize that combat will break down to a series of small-unit engagements at the company strongpoints. These engagements are fought at close range with both heavy and handheld weapons. When enemy infantry and tanks attack together, Soviet defenders try to destroy the infantry first. This makes the unsupported tanks an easier target in the city.

If the enemy succeeds in penetrating a company strongpoint, the Soviets plan immediately to call in a heavy volume of artillery and mortar fire to prevent enemy advancement into the sector. Battalion resources—second echelon companies of the battalion reserve—conduct the counterattack along planned routes. If the battalion deploys in a single echelon, the battalion reserve makes the counterattack.

The Soviets pay considerable attention to the design and use of mock-ups and ranges for training in street fighting. Much of the training is carried out to achieve physical fitness. There are indications that motorized rifle troops learn the skills of combat in built-up areas under simulated battle conditions.

CHAPTER 11

NIGHT COMBAT

In the Soviet view, night cannot be a reason for decreasing activity. On the contrary, they use the dark of night to achieve surprise, to increase the rate of advance, and to win time. The Soviets consider darkness to be more of an advantage and an opportunity than a reason for interruption of combat.

Combat at night is normally an extension of combat actions begun during the day. The battle may be carried on into the night to retain the initiative with a high offensive tempo.

The Soviets recognize that darkness favors the performance of marches and maneuvers; makes it easier to concentrate men and materiel in a decisive direction; hampers enemy use of most weapons, airborne troops, and aviation; and provides favorable conditions for achieving surprise. By skillfully employing the advantages of night conditions, attacking units can fulfill their mission with smaller losses in personnel and equipment.

Night also presents problems. It is more difficult to orient oneself at night and to maintain direction of movement. Effectiveness of aimed fire is reduced, and reconnaissance and selection of targets become more difficult. The Soviets feel, however, that these negative factors can be successfully overcome through frequent and careful training.

Soviet doctrine states that the difficulty inherent in a night attack aids the soldier in the defense and that the defender is more confident. However, they also recognize that a well-organized surprise attack has a strong negative psychological effect on the defender.

CONDITIONS AFFECTING NIGHT COMBAT

Darkness modifies the outline, shape, and coloring of local objects and distorts separation distances. Dark objects seem farther away than they really are, while lighter ones appear to be closer. According to the Soviets, on a clear night one can recognize land relief and coloration up to 400 meters with the naked eye. Under a high moon, one can spot a moving man at 240 meters, and using binoculars, at 700 meters.

Sound is another factor that changes at night and leads to both physical and psychological distortion. At night, sounds seem louder and carry farther. Directions from which sounds originate cannot always be determined. Weather conditions such as rain can affect both audibility and visibility and serve as a definite advantage for the attacker.

The lack of convection (vertical streams of air) also affects night combat, since the persistence of gas, fog, or smoke is considerably increased in the absence of vertical air streams.

Night combat also is affected by the physical and psychological conditions of the troops. Darkness stimulates the imagination and a feeling of insecurity

Night Factors

DISTANCES AT WHICH LIGHT SOURCES CAN BE OBSERVED AT NIGHT WITH THE NAKED EYE

SOURCE	DISTANCES
Vehicle headlights	4-8 km
Muzzle flashes from single cannons	4-5 km
Muzzle flashes from small arms	1.5-2 km
Bonfire	6-8 km
Flashlight	up to 1.5-2 km
Lighted match	up to 1.5 km
Lighted cigarette	.5-.8 km

NOTE: For observation from the air, these distances are increased 2 to 3 times.

DISTANCES AT WHICH SOUNDS ARE AUDIBLE TO MAN AT NIGHT IN OPEN AREAS

SOURCE	DISTANCES
Cannon shot	up to 15 km
Single shot from a rifle	2-3 km
Automatic weapons fire	3-4 km
Tank movement	
-on a dirt road	up to 1.2 km
-on a highway	3-4 km
Motor vehicle movement	
-on a dirt road	up to 500 m
-on a highway	up to 1 km
Movement of troops on foot	
-on a dirt road	up to 300 m
-on a highway	up to 600 m
Small arms loading	up to 500 m
Metal on metal	up to 300 m
Conversation of a few men	up to 300 m
Steps of a single man	up to 40 m
Axe blow, sound of a saw	up to 500 m
Blows of shovels and pickaxes	up to 1,000 m
Screams	up to 1,500 m
Oars on water	up to 2,000 m

that might eventually lead to panic. Nights normally are reserved for rest. Fatigue and symptoms of exhaustion may affect those who have to stay awake.

Darkness reduces the effectiveness of all types of fires. Effective fires are almost impossible without night-vision equipment or illumination. Soviet artillery and aviation make wide use of illumination but still encounter difficulties in spotting rounds and in conducting artillery reconnaissance. Darkness severely hampers visual identification and acquisition of enemy aircraft by regimental air defense elements. Night conditions can increase the morale of tank troops by lessening the possibility of their tanks being destroyed by antitank artillery. However, orientation, location, maintaining direction of movement, and the general difficulty of operating vehicles in darkness can complicate the employment of tanks. Coordination with other units is also difficult.

First echelon engineer support is more important during combat at night. Soviet engineers are trained to use illuminating signs and markers to designate direction of movement, destroyed areas, and passages through obstacles.

Chemical weapons have a greater effect on manpower at night due to atmospheric conditions. Consequently, Soviet commanders are urged to increase chemical and radiation reconnaissance at night. However, monitoring devices are difficult to read and NBC reconnaissance is considerably complicated. Notifying the troops of contaminated areas is more difficult in darkness, and commanders are advised to appoint more observers than during the day to provide a timely warning of the contaminated area. Voice signals are used to warn personnel. Signal flashes are not used as a warning because they reveal friendly locations.

EQUIPMENT

Illumination devices include illuminating cartridges, rockets, shells, aerial bombs, searchlights, mines, mortars, tracer shells, and flares.

They are employed to:

- Improve visibility of the ground and of enemy targets.
- Observe the battle area.
- Orient troops during the course of battle.
- Support the conduct of aimed fire.
- Blind the enemy and to combat his illumination support equipment.
- Issue commands.

Illumination may be periodic or continuous. The latter is reserved for a major attack against centers of

resistance or fortified areas or for repulsing counterattacks.

The basic principles in the employment of illumination devices are surprise and massing. Massing is achieved through a consecutive concentration of illumination equipment. The Soviets consider radius, intensity, and duration important in determining which particular device to use.

Aerial flares producing one million candle power of illumination burn 3 to 6 minutes and provide a circle of illumination .5 to 4 kilometers in diameter, depending on their height above the ground. An artillery star shell illuminates the ground for 30 seconds over a circle 500 to 1,500 meters in diameter. Illuminating cartridges with a range of 200 to 250 meters burn for 7 seconds and illuminate an area with a diameter of 200 to 240 meters.

On flat terrain or terrain sloping upwards toward the enemy, targets are illuminated from behind. Targets on terrain slanting downhill toward the attackers are illuminated from the front. Illuminating devices are employed so as not to reveal the location and disposition of friendly troops, to blind them, or to impair their night vision.

Illumination of the terrain usually is effected according to the senior commander's plan. He defines illumination support missions, including the general order for terrain illumination, intensity and duration of the mission, disposition of the enemy's defense and key objectives, measures for disorienting and blinding the enemy, and measures for countering the enemy's illumination and night vision devices. The commander also decides how illumination will be used to control and maintain coordination among his subunits. He defines signals for target designation and specifies combat illumination equipment reserves and how they will be used.

Illumination support also may be used in other ways in the conduct of night combat. Searchlights can be used to blind the enemy, thus making it difficult for him to deliver aimed fires. During the march, illumination orients subunits advancing to deployment lines. This prevents confusion in combat formations, and insures precise coordination. Luminous markers along the routes of advance facilitate the rapid advancement of second echelon units and reserve forces. Such markers are used to identify concentration areas. Luminous distance indicators also are attached to a vehicle's rear light. The driver can determine the distance to the vehicle in front of him based on the number of red stripes he can see (e.g. one continuous red stripe is visible at 50 meters, two red rectangles can be seen at 30 meters). Knowing these distances,

the driver can adjust his spacing and speed accordingly.

Infrared night vision sighting devices include infrared binoculars, drivers' indirect vision devices, and searchlights installed on vehicles. Radar could be included in this grouping since it is used to conduct reconnaissance and to adjust fire. Reportedly the Soviets also have passive infrared vision devices.

While these instruments permit better observation, they do have range limitations. At longer ranges they are limited to defining the form, silhouette, and degree of contrast of an object. Active infrared devices operate on the principle of "illuminating" the ground object by means of infrared rays and converting the reflection of targets into a visible image. The enemy can detect the emissions of active devices easily and for that reason they are used sparingly. Passive devices do not emit rays and therefore cannot be detected. The infrared night observation system, NSP-2, and the infrared night-driving device, TVN-2, can be used either actively or passively. In complete darkness, it is possible with these devices to identify local features and engineer construction, to maintain observation of activities, to conduct aimed fire, and to drive vehicles without headlights. However, night vision devices are not effective in heavy fog or during heavy rains.

Tanks also have infrared (IR) sighting equipment for the main armament and searchlights that can be equipped with an IR filter. Targets can be identified up to 800 meters. Nevertheless, active IR can betray the exact position of the user if the enemy is using IR sensors. This hazard is readily appreciated by the Soviets in their night combat. Tank drivers use IR binoculars regularly in night training. Tank commanders use binocular-type passive IR sensors.

Sound-monitoring devices can provide observation of the enemy when night vision devices are ineffective or cannot be used for security reasons. The monitoring devices can pick up noises made by the movement of personnel and vehicles and by the firing of various types of weapons. Enemy activities can be determined based on the sound detected. Heat detection devices also are used in defining the direction to a target. In the future, the Soviets expect to be able to use heat detection instruments to determine not only the location of arms and equipment but also the location of personnel.

There are three types of land navigation systems used in the Soviet ground forces. All three systems depend on a directional gyroscope, an instrument designed to accurately preserve an initial reference bearing during movement. The three systems are self-contained, do not depend on emissions from elec-

tronic transmitters, and do not require space on the radio wave band. They are not susceptible to intercept, jamming, or other electronic measures.

The GPK-48 and GPK-59 navigation systems are installed in some T-55 and T-62 tanks. The driver only has to switch the instrument on, give it time to warm up, and set his heading. The GPK-48 was designed to give direction in snorkeling operations but has no built-in compensation to allow for the earth's rotation. The instrument is accurate only for periods of 15 minutes without resetting. The more recently developed GPK-59 has a compensating mechanism and can operate accurately for up to 90 minutes.

A computer and display navigation system known as "the coordinator" is installed in some command tanks. The system consists of six components, three of which require no access by the crew except for inspection. The system displays map coordinates in northings and eastings rounded off to the nearest 10 meters. The vehicle heading displayed is in Soviet miles on coarse and fine scales. The instrument is 90 percent accurate. Once set, it can be used to navigate within a 100-kilometer grid square.

Another Soviet navigation system has a map plotter. This is not installed in tanks but may be used by some motorized rifle units.

There is also evidence of a new navigation system. It appears to be an improved version of "the coordinator." The newer system permits operation within a 100-kilometer grid square without resetting. The instrument displays plus and minus coordinates on 1-kilometer and 200-meter scales from the present location. Bearing to the destination is shown on a separate dial.

THE MARCH

The night march is an essential element of night combat. The Soviets learned the importance of night marches during World War II when many of their important operations began with long night marches. Regardless of their difficulty, night marches are a necessity. Their preparation, organization, security, and execution require a great deal of attention. The successful execution of a night march depends to a large degree on the general maintenance, organization, concealment, and rapid movement of all units.

The commander must identify areas that will present difficulties for concealment and provide instructions for the use of night vision devices, illumination instruments, and communications. Extensive use is made of light-signaling equipment (flashlights, signal lights, etc.). By means of these devices, signals

may be transmitted indicating the start or finish of any activity, changes in direction of movement, positions, requests for fire support, and other tasks.

Strict light and sound discipline is paramount and must be maintained at all times, particularly when passing through open areas. Active infrared night vision devices are used when approved by the march commander.

Communications between platoons and companies can be conducted by messengers or between battalions by messengers using motorcycles. Short radio transmissions can be employed for communications between regiments. During the night march, security elements are located closer to the main body than during the day.

Reconnaissance is conducted before and during the night march. Reconnaissance elements do not range out as far during the night as they do during the day. Besides enemy information, Soviet reconnaissance units collect information on the condition of the march route, existence of bypasses, favorable locations for water crossings, and obstacles. The number and strength of reconnaissance units are increased at night on both the flanks and the head of the column. Chemical radiation reconnaissance patrols are provided with infrared devices, illuminating markers, contaminated sector boundary markers, and signs to define contaminated sectors.

Concealment from enemy radar is aided by traveling near population centers, near railroads, and on roads in forests.

Normally, long halts are not made at night because the hours of darkness must be used to the maximum extent for movement. During short summer nights, troops are given only a 5- to 10-minute rest at each rest stop. Rest stops are taken at sources of water or fuel. Rest stops must not be made near large population centers, railroad stations, bridges, and other objects of possible enemy interest. Rest stops are never taken in open areas or near ravines or defiles. Strict blackout and noise discipline are maintained. The use of light and the building of fires are prohibited.

Senior commanders organize traffic control service. Subordinate commanders are informed as to how traffic control is organized, where traffic control posts have been set up, and how bypasses and difficult sectors of the route are marked.

THE OFFENSE

A night attack may be the continuation of daytime combat, or it may be the start of a new attack. A continuation of a daytime attack must be carried through

without a break so that the enemy will not have time to bring up his reserve or to regroup. An artillery preparation usually precedes the night attack. However, to achieve surprise, an attack may be launched without preparatory fires, tanks, or the use of illumination.

Night attacks are most often launched 2 or 3 hours before dawn to permit daylight exploitation of success. The success of a night attack ultimately depends on precise organization, concealment of preparations, surprise, control and coordination of combat and supporting units, fire support, and illuminating and night vision devices.

The commander plans illumination of the objective, light signals for coordination, boundary lines for attacking units, the means of destroying enemy illuminating devices, and the assignment of reference points. The battalion commander locates himself where he can observe both enemy and friendly forces. The commander of supporting artillery usually is located with the battalion commander.

Another control measure is the assignment of azimuths to each unit. The Soviets depend on the use of azimuths and consider them a valuable supplement to reference points.

Control is exercised further by designating guide units. Each battalion designates a guide company; each company, a guide platoon; and each platoon, a guide squad. Guide subunits are centrally located and provided with night vision devices and illumination means.

In an attack from a position in direct contact with the enemy, subunit directions of attack and passages through mine fields or obstacles may be designated by one-way glowing markers emplaced in the ground. Markers for different subunits may have distinctive shapes or colors.

If the attack is made from the march, subunits may be assigned an azimuth of attack. Locations for deployment from march formation to prebattle formation and then to attack formation may be designated by ground markers, signal lights, or flares. The depths of subunit objectives in a night attack would probably be reduced from daytime depths.

Complicated maneuvers are avoided because of difficulty may be ordered to orient subunits and to clarify the missions. The most common attack formation at night is the line formation.

Motorized rifle subunits usually attack dismounted at night. They may conduct a mounted attack if the terrain is very open, if enemy defenses have been successfully neutralized by combat support means, and if illumination is abundant.

Within the attack formation, distances between tanks, dismounted riflemen, and APCs is reduced. Riflemen probably attack on line with or immediately behind the tanks. APCs probably follow at a distance of approximately 100 meters.

If illumination is abundant, subunit attack frontages are probably the same as those for an attack in daylight. If little or no illumination is available or used, or if difficult terrain must be crossed, attack frontages probably are reduced. As in a daylight attack, the Soviet commander tailors his forces and tactics to the situation.

It is difficult to pinpoint the exact location of artillery bursts and to conduct artillery reconnaissance during periods of artificial illumination and when night vision devices are used. Consequently, maneuver subunits are assigned more supporting direct fire weapons at night. Supporting weapons either move separately from the maneuver subunits, move several hundred meters to their rear, or move directly on line with them. Some artillery may remain at the line of departure to support the attack when subunits move out to the attack.

Illumination assures effective artillery fire to distances of not more than 3,000 meters. The closest line of illumination (when illuminating shells are used in windless weather) is fixed at no less than 500 meters from the guns detailed to carry out direct fire. The targets to be destroyed by direct fire should be located approximately in the center of the illuminated zone.

Illumination by searchlight is periodic. Searchlights are turned on for 10 or 15 seconds and then switched off for the same period of time. Illumination is employed in a manner to hinder the enemy's activity but not disclose the objective of Soviet activity.

Each artillery battalion designates one platoon for illumination missions. Illumination can be either periodic or continuous. In the latter case, illuminating rounds are fired every 20 to 30 seconds, 5 to 10 seconds less than the full burning time of one round.

The most important tasks of reconnaissance elements in a night defense are timely detection of enemy preparation for a night attack, location of enemy illumination equipment, and detection of enemy engineers penetrating obstacles. Ambushes may be set up, and friendly patrols may be sent out at night to reconnoiter gaps between strongpoints or on exposed flanks.

One of the most important measures in night defense is illumination support. This includes illuminating the ground area, blinding the enemy, setting up marker lights, and determining mutual

recognition signals. The commander plans the number and location of illumination posts, the amount and type of illuminating equipment to allocate to units, the reserve to be retained for his own disposal, target indication procedures, and illumination readiness time. Incendiary shells may be employed to start fires to blind or illuminate the enemy.

Planning for a counterattack begins with the preparation and organization of a night defense. The night counterattack must be simple and carried out quickly. A determined surprise night counterattack, even by a small force, could have considerable impact on the enemy's night attack because of its psychological impact.

Artillery, mortars, and tanks are given preparatory fire missions against any enemy penetration and in support of the counterattack. The unit commander allocates tasks to the artillery and mortars to prepare concentrated fire in the area of probable enemy penetration.

A night counterattack usually is conducted in one echelon. With a single-echelon combat formation, combined arms cooperation and control are considerably simplified.

THE DEFENSE

Night creates many difficulties for the attacking forces but offers considerable advantage to the defender. Darkness reduces the effectiveness of an attacker's reconnaissance, observation, and aimed fires. Darkness also provides the defender with better concealment than the attacker. It is more difficult at night for the attacker to maneuver and control his forces. The defender, on the other hand, can move forces under the cover of darkness from the FEHA or from areas threatened by the enemy before the attack begins, thus conserving his forces and causing the enemy to attack areas of little value.

The difficulties in organizing a night defense require a comprehensive defense operation order. The more important items of an order are:

- Possible enemy night activities.
- Reference points.
- Tasks for reconnaissance.
- Raids.
- Location of observation and listening posts.
- Security.
- Utilization of night vision devices.
- The fire plan.
- An illumination plan.
- Signals for warning, control, and identification.
- Camouflage.

In a night defense, the command observation post is located near the FEBA so the commander can conduct his own battle surveillance using night vision devices and illumination equipment. Additional observation posts can be established in the forward area if required.

It may be necessary to reinforce night defenses and to increase the density of fire in front of the forward area as well as in sectors not occupied by friendly units. Reserves or second echelon forces may be moved up to the forward area for the night.

TRAINING

Since the Soviets consider night operations to be a normal activity, their training patterns reflect this attitude. The Soviets claim to devote about 50 percent of training time to night training.

The Soviets begin their training for night combat with the individual soldier and then progress to unit training. The soldier learns to select and recognize orientation points that may escape his attention during the daytime. He is trained to recognize different sounds and to estimate their range and direction. He also learns to use night vision devices and artificial illumination. He is taught night firing techniques. Special training is set aside for night tank and truck driving.

The Soviet soldier is given a number of training problems that he must solve in total darkness, without the aid of night vision or illumination devices. This is done to prepare him psychologically for night combat

and to develop initiative and resourcefulness. The problems are based as much as possible on actual combat conditions. Psychological training is expected to develop confidence and a feeling of superiority.

Some physical training is conducted at night. Soldiers run through a conventional 200-meter obstacle course at night, crossing obstacles such as ditches, bomb craters, fences, palisades, walls, trenches, pits, streams, and ravines under combat conditions.

Although the Soviets devote a great deal of time to night training, indications are that for the most part the training is stereotyped, unrealistic, and frequently noncombat-related. Soviet night training reflects the fact that they plan to move a lot at night. Thus, night marches and related activities (reorganization, maintenance, and preparations for a daylight attack) compose the bulk of Soviet night training.

Training for movement at night also indicates a discrepancy between doctrine and practice. Despite a variety of available night vision devices, vehicular headlights and flashlights are used often to help maintain control and orientation.

A great deal of night movement and training takes place only after thorough reconnaissance, planning, and rehearsal are conducted during daylight hours. Soviet night training is directed more at movement, preparation for daylight attacks, construction of field fortifications, and resupply than at preparation for large-scale night combat.

CHAPTER 12

REAR AREA COMMAND AND CONTROL

THE REAR AREA

The Soviet concept of the "rear area" visualizes modern war in an unprecedented spatial scope. This rear area concept stretches from the forward edge of the battle area (FEBA) back to the national capital.

To the Soviets, there are two aspects of the rear area concept: broad and narrow. The broad aspect includes the entire country, its population, economy, government, and its political structure. It is the production base for necessary war materiel, the mobilization base for personnel replacements, and the control center for the complete war effort. The narrow aspect includes the activities of all military units that supply technical, materiel, and medical support to combat forces in established theaters of military operations (TVD).

Soviet rear area support is organized on three different levels: strategic, operational, and tactical.

Strategic

Strategic rear area operations are conducted at the national level by the Ministry of Defense. They extend into the theater of combat operations during wartime. Strategic rear area operations procure personnel, materiel, and services needed by the military. These operations prepare the Soviet economy and the Soviet people to provide sustained support in case of war. Also, central rear services, which is the highest logistic organization of the armed forces, serve both to link the national economy and the armed forces and to directly support operational forces.

Operational

Operational rear area functions are conducted by front and army rear area support elements. Military districts, groups of forces, and army support elements are the principal points of delivery for materiel and equipment contracted by the Ministry of Defense. Most items are received, stored, and prepared for release to combat units directly from industry. Support activities in the operational rear area are conducted mainly from fixed or semifixed installations.

Tactical

The tactical rear is at division and lower. Tactical rear area operations meet the immediate combat needs of supported units. Divisions carry about 3 to 5 days of supplies.

Soviet rear area support has a dual task: peacetime support and wartime support. In peacetime, rear area support maintains the Soviet armed forces in a high state of preparedness for commitment on short notice. Soviet military doctrine requires that the armed forces and the entire population constantly be prepared for the sudden outbreak of a major war. In wartime, rear area support provides technical, materiel, and medical support to forces engaged in combat. The Soviets think a major war in Europe is likely to be a short, highly intense conflict with conventional or nuclear weapons disrupting the flow of service support. They expect logistic requirements to be quite large when their offensive is in the initial stage. After the penetration, logistic requirements will lessen because attacking forces will encounter less organized resistance deep in the enemy's rear.

The Soviets also recognize the need to prepare for a long conflict and to support combat forces that attain and hold deep objectives. Service support units in the operational (army and front) rear and the Soviet central logistic system provide this in-depth, follow-on support. Service support is organized to keep pace with rapidly advancing frontal forces (mechanized and armored units supported by aviation). The central logistic system may deploy to theaters of military operations (TVDs) and directly support operational forces if required.

CHIEFS OF THE REAR AND THEIR COMMANDS

The overall system of rear area support is the responsibility of the Chief of the Rear of the Soviet Armed Forces. He is also one of the Deputy Ministers of Defense. He is the principal controller and coordinator of the many logistic organizations and assets which make up the central rear services. However, the organization of specific rear area operations is the responsibility of each individual unit commander.

The Soviets emphasize the commander's responsibility to organize his own rear area operations at every level of command. The commander delegates this responsibility to his deputy commander of the rear also known as the chief of the rear.

The Soviets stress the important role played by the chief of the rear. He is a rear services officer who is directly subordinate to his commander. There is a rear services officer at every level of command down to

regiment. He assumes responsibility for rear area details, which permits the commander to devote his full energies to combat operations.

The rear area command and control is based on the commander's operational decisions. The commander may make these decisions or delegate this responsibility to his chief of the rear. Specific rear area decisions include designating deployment areas and direction of movement for rear service elements; determining supply and evacuation points, size of necessary reserve units, and the periods of their formation; specifying medical and technical support; establishing rear area security measures; and designating initial and subsequent locations of the rear area command post.

Each chief of the rear has a staff to assist in planning and providing rear area support. The staff coordinates with arms and services tasked with logistic functions and responsibilities. The chief of the rear, together with arms and services representatives, develops both a rear area support plan based on the commander's decision and any instructions from the chief of the rear of the next-higher level. This plan contains specific deployment and movement schedules for rear area elements, control and coordination measures for their activities, and measures for rear area security.

The chief of the rear coordinates basic rear support matters with the unit's chief of staff and arms and services representatives. He keeps them updated on the equipment status, the availability of reserves, and the medical support. The chief of staff, in turn, provides the chief of the rear with timely information regarding the mission and the commander's decisions.

Rear area command posts (CPs) are established at all echelons from front to regiment. A rear CP must be able to communicate with the parent unit and with subordinate, adjacent, and higher rear area command posts. CP personnel include the chief of the rear, his staff, and the communications, transportation, security, and traffic control troops.

Rear area communications are guided by the same basic principles that are applied to all Soviet communications: continuity, mobility, and redundancy. Communication means include messengers, wire, and radio (single-channel, multi-channel, tropospheric scatter). Radio links are supported by airborne, ground-based, and satellite relays. Data links extend from the Ministry of Defense to at least front rear area command posts. Secure voice communications are established down to regimental rear.

The rear area command post's mobility and survivability are improved by employing an "operations group." The functions of the operations group are to

maintain continuous rear area command and control during redeployment of the main rear area CP. The operations group consists of a few rear area staff officers with limited communications who temporarily can maintain command and control of rear area operations while the command post relocates.

LEVELS OF COMMAND AND CONTROL

Soviet rear area support is controlled at three levels: strategic, operational, and tactical.

Strategic

At the strategic level, the Ministry of Defense is responsible for all rear area activities of the armed forces. Within the Ministry of Defense, the Chief of the Rear of the Soviet Armed Forces accomplishes central coordination of all support activities. He and the rear services staff coordinate support operations of the deputy commanders for the rear of the service components and troop branches, the sixteen military districts within the USSR, and the groups of Soviet forces deployed outside the USSR.

Directly subordinate to the Chief of the Rear are the support directorates common to all services and branches (food, clothing, POL, medical, and veterinary services). The Chief of the Rear coordinates with the service branch directorates as well as with special troop directorates on matters falling within their jurisdiction.

In wartime, central logistics units, resources, and command and control elements may deploy to a theater of military operations (TVD). The functions of these elements would be to support operational formations and to organize the use of theater resources.

Operational

The highest level administrative headquarters in peacetime are the military districts in the USSR and groups of forces outside the country. In wartime, both have sufficient communications and staff elements to form fronts. There are no fronts as such in peacetime.

The military district is a high-level military territorial administrative command. It includes military areas, recruiting districts, military schools, installations, and garrisons. When units in a military district are formed into a wartime front, elements of the military district staff may provide the basis for the front rear area staff. The military district continues to provide command and control for assigned central rear services missions

and other support functions. The peacetime rear area support organization of a group of forces can quickly assume command and control of front rear area operations.

The wartime operational combined arms formations are fronts and armies. The rear area operations for these formations is accomplished by a chief of the rear, (also called the deputy commander for the rear) and his support units.

Command and control of rear area operations are conducted from rear area command posts. The front establishes its rear area command post 150 to 200 km behind the FEBA. The army locates its rear area command post about 100 km behind the FEBA. In high tempo offensive operations, rear area command posts move frequently.

At front and army, the chief of the rear has varying degrees of authority for accomplishing the following rear area functions:

- Controlling rear area security, including control of combat elements tasked to provide rear area security.
- Tasking directorates with specific support missions.
- Assigning deployment areas to support units in the rear area.
- Coordinating with chiefs of service troops, tank, rocket troops and artillery, and the Central Military Transportation Directorate (VOSO) for rear area support in their respective areas.
- Issuing instructions to subordinate chiefs of the rear about the administration of support activities.

Tactical

At regiment and division, the chief of the rear (deputy commander for the rear) supervises a staff which includes deputies for food; petroleum, oils, and lubricants (POL); and clothing. Coordination is made with engineer, signal, transportation, chemical, and ammunition directorates. Vehicle maintenance, repair, and recovery is the responsibility of the deputy commander for technical affairs. The repair of on board

weapons and associated equipment is the responsibility of the deputy commander for armaments. These activities are coordinated with the chief of the rear.

Chiefs of the rear at regiment and division have small staffs to coordinate the activities of all combat service support elements at their respective levels. However, their basic command responsibility changes for rear area security. If requirements dictate, tactical units can be assigned rear area security missions under the operational control of the chief of the rear.

Division and regiment rear area command posts are equipped with fully mobile communications facilities. Division rear area command posts will be about 30 km behind the line of contact; regiment rear area command posts will be about 15 km behind the line of contact.

There is no chief of the rear (deputy commander for the rear) lower than regiment. The unit commander below regiment is his own manager of rear area operations.

At tank and motorized rifle battalion level, the commander is assisted by the following personnel:

- Chief of battalion staff (similar to US battalion executive officer) is the principal assistant for organizing and administering battalion rear area operations.
- Battalion technical officer is responsible for organization and control of maintenance, repair, and salvage of both combat and noncombat vehicles.
- Battalion supply platoon commander orders, stores, and distributes all supplies and equipment. He commands a supply platoon consisting of a supply section and an ammunition and motor transport section. The ammunition and motor transport section operates the battalion's cargo and POL trucks.

At company level, a company technical officer assists the commander in logistics. The company technical officer supervises weapons crews in field maintenance and light repair. He also is assisted by a company first sergeant who is accountable for company-level supply.

CHAPTER 13

LOGISTICS

CONCEPT AND PRINCIPLES

Comparison of US and Soviet military elements has led to the incorrect view that the Soviet logistic structure is austere and inadequate to support their combat forces. Because of differences in concept and organization, Soviet logistic operations have been falsely referred to as the "Achilles' heel" of Soviet military power. However, Soviet military forces do receive effective logistic support. The Soviets have spent enormous sums of money to develop a modern and highly mechanized logistic support system. Materiel-handling equipment is increasing in both quantity and quality. The use of pallets, containers, and packages has greatly improved the efficiency of Soviet logistic efforts. The Soviets have increased the depth and range of forward service areas and increased the mobility and range of logistic formations in support of frontline forces. They have developed a tactical pipeline capability and introduced improved transportation assets in great numbers. Also, Soviet capabilities for air delivery to forward areas and the use of helicopters for resupply have shown marked improvements.

Centralized Planning

This principle requires concurrent tactical and logistical planning as well as coordination with civilian industry and transportation. Centralized planning insures coordination of civilian war production with military requirements.

Tailoring of Logistic Units

This principle allows allocation of logistic resources to the combat elements most essential to the success of the mission. Tailoring allows the Soviet military to assign priorities for logistic support.

Fixed Supply Priorities

The Soviet logistic system operates on the following sequence of priorities:

1. Ammunition of all types.
2. POL.
3. Technical supplies.
4. Rations and clothing.

However, these priorities can change with the combat situation. For example, a unit advancing rapidly with no opposition has a greater need for POL than for ammunition.

Delivery Forward

Higher headquarters handle supply requirements for their subordinate units. Supplies and services are delivered directly to subordinate units using the organic transportation assets of the higher headquarters. For example, an army headquarters uses its own trucks to deliver supplies to its subordinate divisions. In emergencies, one level may be bypassed in supply delivery. A division may deliver supplies directly to subordinate battalions, or a regiment may deliver directly to subordinate companies. This concept does not prevent a subordinate unit from using its assets to obtain supplies from its superior headquarters, especially in critical situations.

Continuous Supply Base Support

Supply bases and repair facilities are established as far forward as possible to insure the flow of supplies from the central logistics level directly to combat units. These echelons of bases from the homeland to deployed battalions assure continuous support for tactical elements.

Standardization of Equipment

The Soviet system of standardization is both extensive and effective. For example, of the 3,544 parts that make up the ZIL-131 3 1/2-ton truck, 45 percent may be used on other ZIL-produced vehicles, and 23 percent may be used on other trucks of the same weight class. A T-62 tank and the MAZ 537 tank transporter share a common power plant. The chassis used for the amphibious PT-76 light tank has been adapted for BTR-50 armored personnel carriers, SA-6 and FROG-2, -3, -4 and -5 TEIs, the GSP amphibious ferry, the GT-T amphibious tractor, the ASU-85 airborne SP gun, and the ZSU-23-4SP AA gun. Extensive standardization has reduced the volume of repair parts and improved the Soviets' ability to repair forward through cannibalization. Also, obsolete vehicles and weapons can be retained for training purposes without having to keep a large stockpile of repair parts.

Supply Accountability and Resource Conservation

The Soviet system is stringent in these areas, and penalties for unnecessary waste generally are severe. Soviet military publications continually stress resource

conservation and honor personnel who effectively conserve supplies.

Complete Use of Transportation

The Soviet logistic system uses rail transport whenever possible to move supplies from the Soviet Union to front or army level depots. Other transportation assets, primarily motor assets, are used from that point forward. The Soviet military has three separate groups of transportation personnel- railroad troops, motor transport troops, and pipeline troops. Soviet doctrine calls for using tactical combat vehicles to move additional POL and ammunition stocks, especially in the preparation phase before offensive action.

Complete Mobile Support

From division to company, materiel and servicing facilities operate from wheeled vehicles. Critical supplies such as ammunition are boxed and uploaded on support and combat vehicles. These measures support a continuous, rapid offensive.

Forward Positioning of Support Elements

Soviet maintenance and medical facilities operate under similar procedures. Both attempt to locate in areas of greatest need with emphasis on quickly returning lightly wounded personnel and repairable equipment to the combat elements. Personnel and equipment requiring additional attention are evacuated to the next-level facility.

Use of All Possible Resources

Soviet troops are taught to forage for food in local areas and to use captured stocks of food, ammunition, and equipment. While food preparation and clothing supply procedures have improved, the supply priorities discussed above may require the use of enemy materiel.

CENTRAL-LEVEL LOGISTICS

Organization

The joint policy and control agency in charge of logistics support for the armed forces is the Office of the Chief of the Rear within Ministry of Defense (MOD). The Chief of the Rear, a deputy Minister of Defense, provides logistical input to plans developed at the highest levels of Soviet government.

Supply and service functions common to all military units and personnel for which the Chief of the Rear has responsibility include: food, clothing, personal equipment, fuel and lubricants, medical and veterinary services, post exchange, transportation planning, and research and development, procurement, storage, issue, and maintenance of common-use items. While these areas are the direct responsibility of the Chief of the Rear, other troop component items are the responsibilities of other directorates and troop commands.

Force components, troop commands, and military districts have rear service directorates. The deputy commander for the rear is responsible for movement of supplies and troop units, and evacuation of casualties and materiel. Under his control, motor transport assets are centralized for operational employment, especially in a preoffensive buildup and for resupply of advancing elements. Centralized control allows use of motor transport assets from second echelon units in frontline operations.

Resources Management

The total amount of resources allocated to the military is a political decision. The Politburo of the Central Committee of the Communist Party probably determines the amount of yearly production allocated to the armed forces for current consumption, and the allocation to be held in reserve. The Council of Ministers (of which the Minister of Defense is a primary participant), and its subordinate agencies work out the details of the allocation plans.

The Ministry of Defense (MOD) prepares its budget proposal in conjunction with other agencies of the state. The General Staff prepares preliminary estimates of armed forces requirements. The State Planning Commission reviews and modifies these estimates in the light of priorities assigned to other government agencies and the resources available. The MOD then submits the estimates to the Council of Ministers for approval as a part of the annual state budget. The General Staff, with the State Planning Commission, further defines the military requirements and directs its various headquarters and directorates to prepare a detailed procurement program. This program then provides the data needed for the arms and services and the subordinate elements of the Chief of the Rear to prepare their own specific procurement programs.

Other agencies of the MOD have specialized procurement responsibilities that are not delegated to the Chief of the Rear. The Main Rocket and Artillery Directorate is responsible for development and procurement of self-propelled and towed artillery,

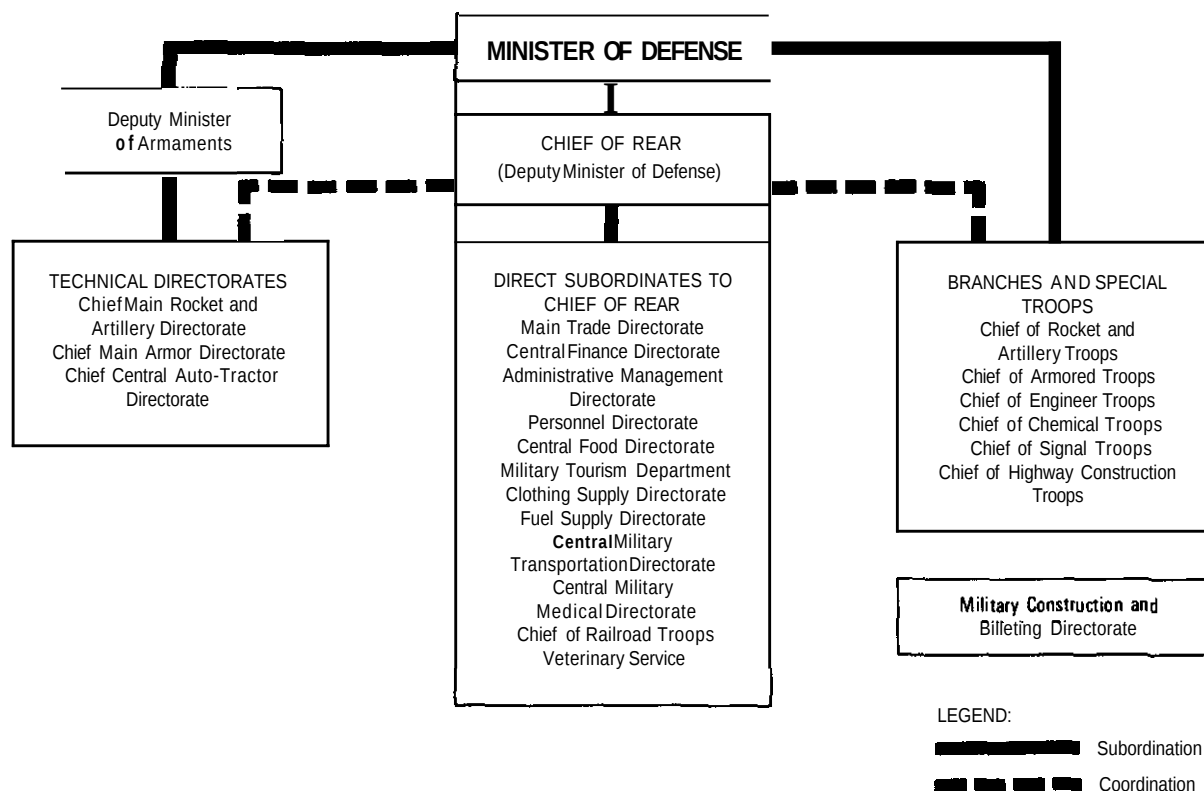
mortars, tank guns, antitank guided missiles, air defense guns, small arms, and all type of ammunition, lubricants, and cleaning materials for weapon maintenance. The Main Armor Directorate is responsible for development and procurement of tanks, infantry fighting vehicles, and certain other armored combat vehicles. The Central Auto-Tractor Directorate is responsible for developing and procuring wheeled and tracked prime movers, military trucks and trailers, adverse-terrain vehicles, fuels and lubricants, and for repair and maintenance of vehicles, except for tanks and other armored combat vehicles.

Agencies of the Ministry of Defense have special troop resource management responsibilities for the armed forces. The Chief of Engineer Troops is responsible for supply, storage, and maintenance of engineer equipment and materiel. The Chief of Chemical Troops is responsible for supply, storage, and maintenance of chemical equipment and materiel. The Chief of Signal troops is responsible for supply, storage, and maintenance of signal equipment and materiel.

Preparation and placement of orders require close coordination between the MOD, the State Planning Commission, and the economic ministries responsible for executing the military requirements. Representatives of the major force components and of the directorates and troop commands perform the function for the MOD under the supervision of the Chief of the Rear.

Accountability is extremely important in the procurement process. The Communist Party and the Military Industrial Commission oversee the entire research, development, and acquisition process. MOD Central Finance Directorate maintains fiscal control. Representatives of MOD main technical directorates are stationed at factories to inspect finished materiel. The MOD directly tasks military industry research institutes, munitions plants, shipyards, and other production facilities, as well as non-military research institutes, and design and production facilities of other industrial ministries to develop and produce military items.

MOD Logistics Organizations



Logistic Stockpiles

The logistic storage of war materials consists of four major categories: state, strategic, mobilization, and mobile reserves.

State Reserves. Foodstuffs, petroleum products, manufactured goods, and other strategic raw materials are stored in special government warehouses. These items can be issued only with the express permission of the State. While these stocks are considered to be separate from the military items held in strategic reserve, military use of at least part of these items is anticipated.

Strategic Reserves. These reserves are stocks of supplies and equipment controlled by the MOD. These stocks are similar to stocks in State reserves and are not planned for early use in a conflict.

Mobilization Reserves. These materials are held for issue to newly activated, large military units and for resupply to combat units in the early stages of a conflict. One directorate in the MOD determines the level and configuration of these stocks. It also is responsible for their accountability and maintenance. The military districts coordinate mobilization measures between military and civilian sectors.

Mobile Reserves. Ammunition, fuel, rations, and equipment are located with deployed ground units and transported by the unit's organic transport. Ground forces maintain these supplies for use in immediate conduct of ground operations. These supplies are distributed throughout the ground forces in both tactical and support elements. Quantities of these supplies are established by published norms. They are constantly checked and kept at proper levels. An emergency reserve of supplies is maintained within these stocks. It can be used only on order of the unit commander.

OPERATIONAL LOGISTICS

Within the Soviet logistic system, the bulk of logistic units are concentrated at two levels, front and army. This concentration supports the Soviet philosophy of streamlined, highly mobile combat elements at division and below. The responsibility and the primary means for logistic support are maintained at these higher levels. Tactical units are free to engage the enemy in high-speed and highly mobile action. This reduction of logistic personnel at the tactical level explains how Soviet divisions can be smaller than US divisions but have more firepower.

The front is not a fixed organization but is tailored to meet specific objectives based on forces available, mission requirements, enemy forces, and the physical geography of the area of operations. Tailoring affects the number and type of subordinate combat elements and the number and type of assigned logistic units. The logistic operation of the front is extensive and complex, and it serves as the major connecting link between the industrial base of the Soviet Union and forces engaged in combat.

Generally located between 150 to 200 kilometers from the FEBA, the front rear area is served by air, highway, rail, and pipeline from the USSR. Rail transport bears the burden of movement requirements to the front. Despite improvements in motor transport, rail transport is used to carry the majority of Soviet war materiel as far forward as possible.

The front supply complex has a wide range of fixed and mobile depots and other facilities such as major hospitals and capital maintenance facilities. At this level, depots are administered by each service, special troop directorates, and the various subordinate elements under the chief of the rear. When the distance between front and army rear areas is great, a front logistic base may be formed and located in the forward portion of the front area. This logistic base is situated along a railroad line when possible and also is supported by highway, air, and pipeline.

The army is the highest-level peace time combined arms formation. It has a permanent staff plus assigned combat support and combat service support elements. With the exception of its reduced size, the army logistic base is similar to that of the front. Logistic elements are basically the same for both tank and combined arms armies.

The army logistic base normally is located within 100 kilometers of the forward edge of the battle area (FEBA). Like the front, the army rear area is served by rail, highway, air, and pipeline when possible. If distances between the army and its subordinate divisions' rear area become great, or the number of units to be supported changes, a forward army logistic base is established. Multiple transport modes service this forward base as much as possible. From this base forward, motor transport is used for the bulk of materiel movement.

TACTICAL LOGISTICS

At the tactical level, Soviet logistic support is fully mobile. Streamlined logistic elements support the respective tactical units with ammunition, POL, and rations to insure continuous combat operations.

Supply elements deliver materials to the rear of combat elements deployed on the FEBA. Medical and maintenance elements deploy as far forward as possible to accomplish rapid return of lightly wounded personnel and lightly damaged equipment to the combat units. Personnel and equipment requiring additional attention are evacuated from the battlefield.

Divisional combat service support elements are completely mobile. The division mobile logistic base normally is located approximately 25 to 40 kilometers from the FEBA in the offense, and up to 50 kilometers in the defense. Logistic elements are organized similar to logistic elements at army level. The logistic base is headed by a logistics officer, assisted by branch depot chiefs, and subordinate to the deputy commander for the rear. Maintenance operations are the responsibility of the deputy commander for technical matters. Motor transport, medical, and field bakery facilities are organic to the division. Supplies are delivered to regiments and battalions.

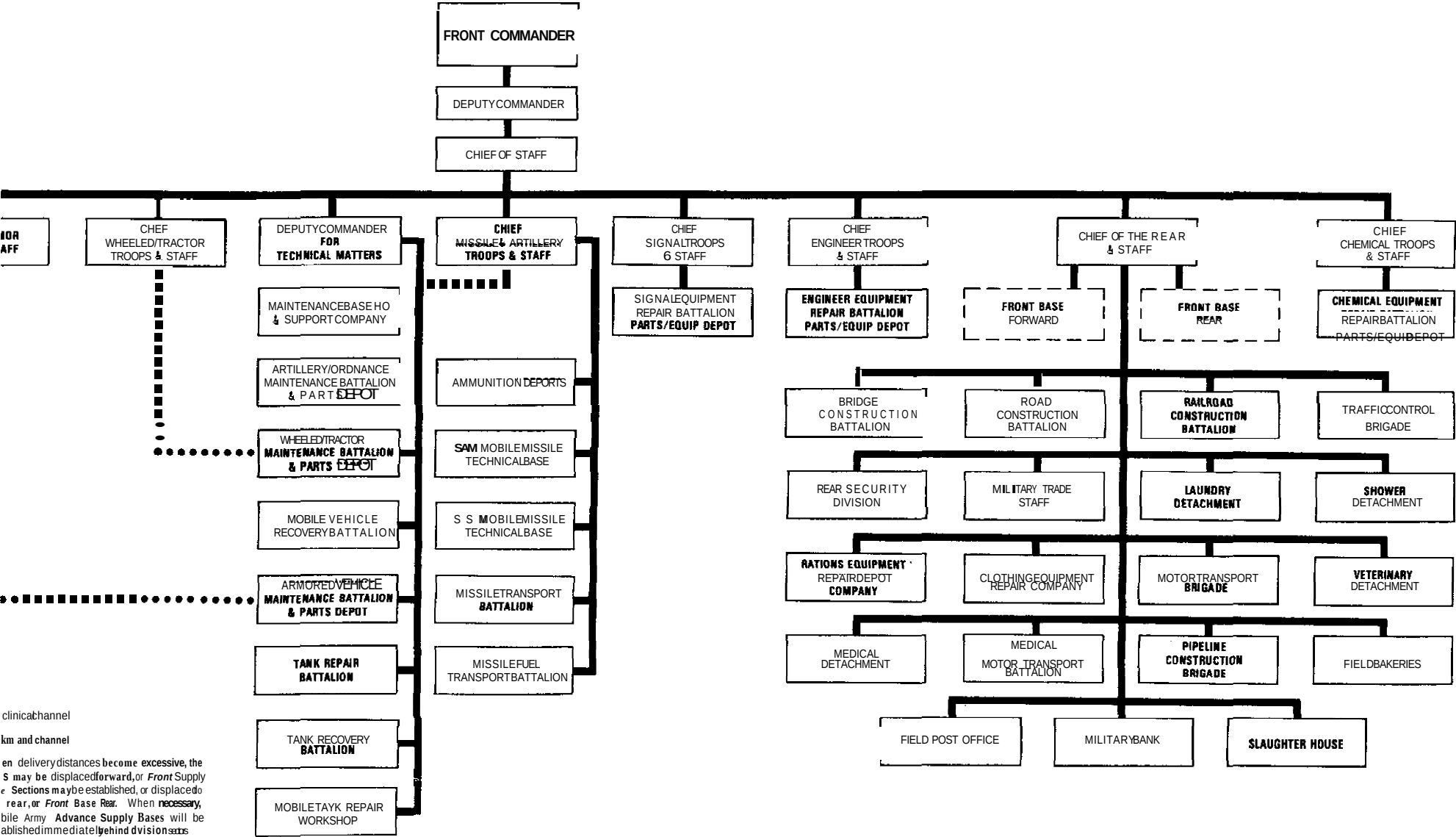
At regimental level, supplies are loaded on vehicles to maintain equal mobility combat elements. The regimental chief of rear service is responsible for all

supply actions. There are no branch depot chiefs at this level to assist him. Maintenance functions are the responsibility of the deputy commander for technical matters. Located up to 20 kilometers from the FEBA, these logistic elements directly supply subordinate battalions, and also may supply line companies when required.

Battalion logistic support is self-contained. Supplies are maintained with the supply and maintenance platoon and transported on battalion vehicles. Prescribed norms of supply are maintained for all classes of materiel, with replenishment provided directly by regiment or division logistic elements. The battalion chief of staff is the organizer of rear service functions. The deputy commander for technical matters is in charge of maintenance support. The supply platoon commander is responsible for receipt, storage, and delivery of supplies to companies. He also deploys and operates battalion ammunition, fuel, and ration points. The battalion fel'dsher (a physician's assistant) is chief of the battalion medical section. He is responsible for gathering and evacuating wounded personnel from the companies and the battlefield.

Locations of Tactical Logistic Elements

UNIT	LOGISTIC ELEMENT	DISTANCE FROM FEBA (IN THE OFFENSE)	DISTANCE FROM FEBA (IN THE DEFENSE)
COMPANY	Ammunition Supply Point Rations Supply Point Medical Point		100-150 M UP TO 1 KM 100 M
BATTALION	Ammunition Supply Point Repair Point Rations Supply Point Medical Point	4 KM 5 KM 5 KM 1.5-3 KM	2-3 KM 3-5 KM 3-5 KM 1.5-3 KM
REGIMENT	Ammunition Supply Point Repair Point POL Supply Point Rations Supply Point Medical Point Damaged Motor Vehicle Collecting Point	10-15 KM UP TO 15 KM 10-15 KM 10-15 KM 5-7 KM 5-7 KM	10-20 KM UP TO 20 KM 10-20 KM 10-20 KM 6-10 KM 6-10 KM
DIVISION	Supply Dump (Ammunition, POL, Rations) Repair Point (Tanks, Weapons) Repair Point (Wheeled Motor Vehicles) Medical Point	25-30 KM 20-40 KM 10-14 KM 10-14 KM	35-50 KM 35-50 KM UP TO 20 KM UP TO 20 KM



The company commander is responsible for organization of his rear services. The deputy commander for technical matters is responsible for organization of company-level maintenance. The company first sergeant, who is a warrant officer or a senior non-commissioned officer, is responsible for accountability and maintenance of the unit's weapons, ammunition, fuel, food, etc. Medical and sanitary matters are supervised by the unit commander and the battalion first sergeant.

SUPPLY

Supply is an operational function of MOD subordinate directorates, of other directorates, and of troop commands at MOD level that handle special-purpose equipment and supply. The Organizational and Mobilization Directorate of the General Staff is responsible for management of the uninterrupted supply of all forces in the initial phases of conflict.

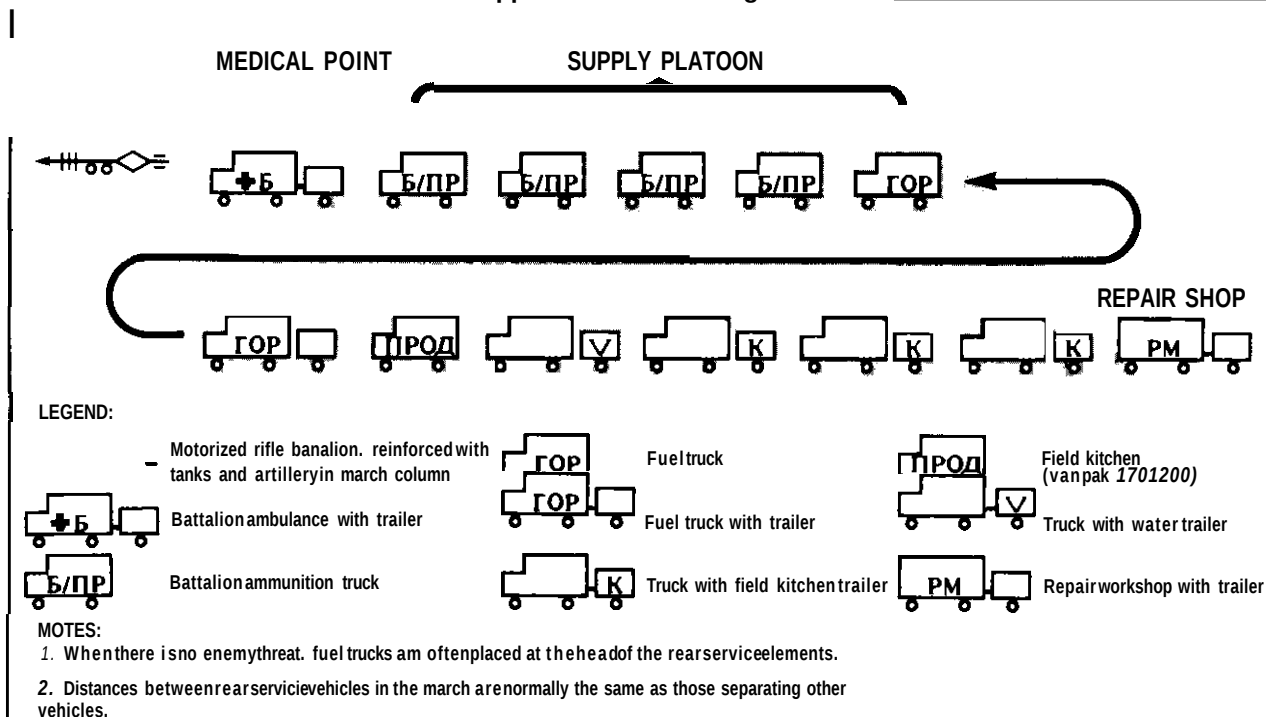
Military district commanders have immediate directive and administrative authority for supply matters. They exercise these responsibilities through a deputy commander for rear services. The deputy commander directs the operations of the subordinate logistic

elements, warehouses, shops, and other facilities. Military districts and groups of forces are the principal points of delivery for material and equipment contracted for by the MOD and delivered by industry. The weapons, ammunition, and other manufactured goods are shipped directly to the military district or group of forces. They assume full responsibility for storage and eventual release of the material to units.

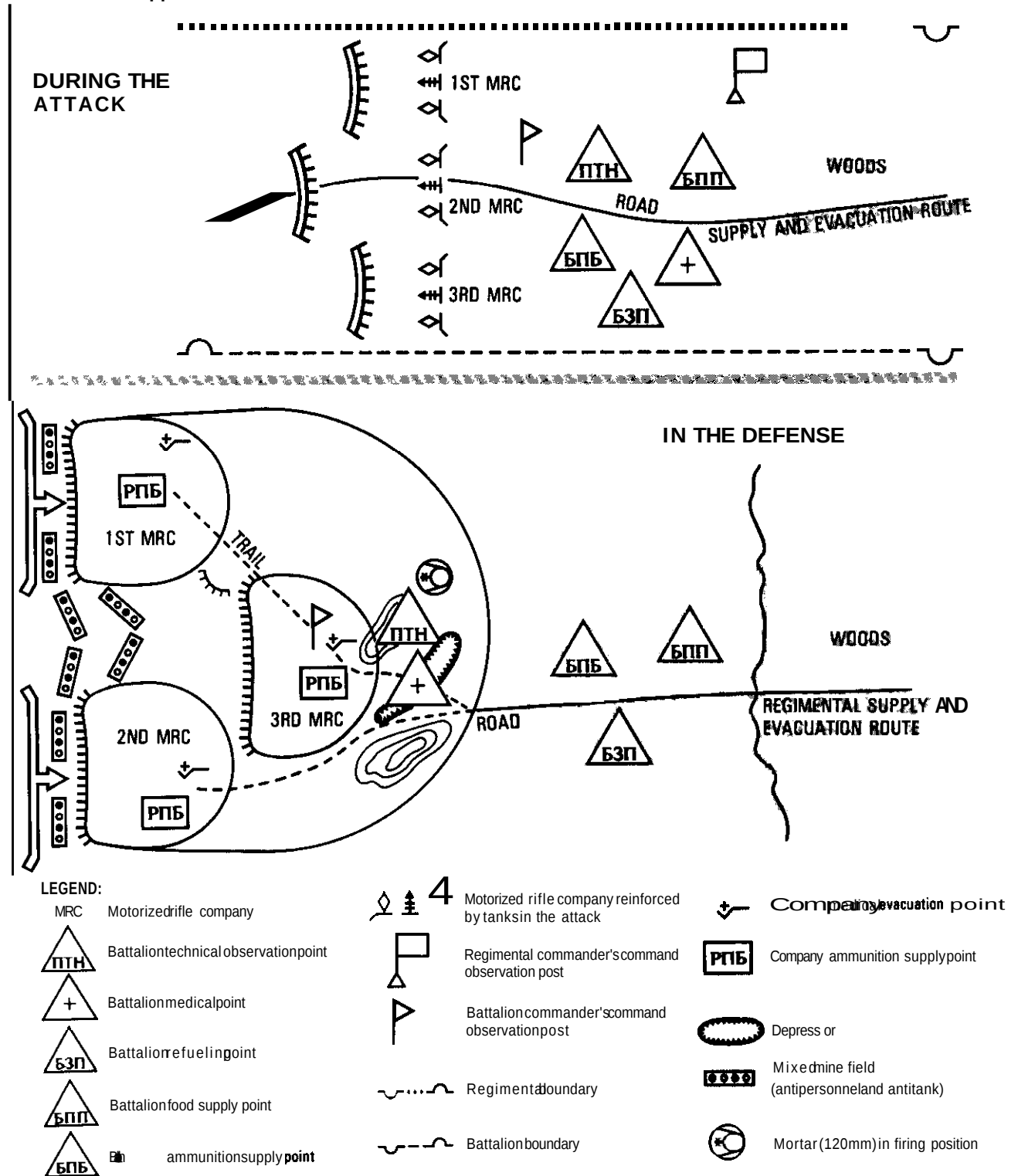
Below the military district or group of forces, army and division staffs reflect the organization of the higher unit in logistic matters. Supply elements at army and division are subordinate operationally to their counterparts at the next higher headquarters.

To simplify logistic planning and to standardize ordering and issuing procedures, the Soviets divide the major classes of supplies into specific quantities or distribution lots. These quantities are called "units of fire" for ammunition, "refills" for POL, "daily ration" for food, and "set" for spare parts and accessories. These amounts originally are computed based on physical conditions or limitations. However, once a specific quantity has been prescribed as the unit of issue, the quantity itself is no longer referred to, and all future references are given in multiples of the unit of issue.

Motorized Rifle Battalion Rear Service Support Elements During the March



Rear Service Support



Ammunition

The chief of rocket troops and artillery plans the supplies and estimates the expenditure of all types of ammunition. The ammunition officer or his staff calculates expected usage. He orders appro-

priate amounts by type and keeps a running account of the amounts on hand in units and in depot stocks. The chief of rear services integrates the ammunition order into his supply transport plan. He allocates

Standard Units of Fire for Soviet Weapons

WEAPONS	NO. OF ROUNDS PER UNIT OF FIRE	WT. PER UNIT OF FIRE (METRIC TONS)
7.62-mm Sniper Rifle, DRAGUNOV	100	.003
7.62-mm Assault Rifle, AKM	300	.007
7.62-mm LMG, RPK	1,000	.020
7.62-mm GPMG, PK/PKS	2,500	.075
12.7-mm HMG, DSHK	120	.020
14.5-mm HMG	100	.06
A/T Rocket Grenade, RPG-7	20	.110
73-mm A/T Gun, SPG-9	80	.65
ATGM, AT-4 and AT-5	4	.08
100-mm A/T Gun, T-12	60	1.75
120-mm Mortar	80	1.80
160-mm Mortar	60	1.35
240-mm Mortar	40	2.18
122-mm Howitzer	80	3.20
122-mm MRL	120 (3 salvos)	12.0
130-mm Field Gun	80	6.20
152-mm Howitzer	60	3.75
240-mm MRL	32	8.9
23-mm ZSU-23-4	2,000	1.4
57-mm AAA S-60	200	2.0
FROG-7	1	3.0
SA-6, SAM	3	2.1
SA-8, SAM	4	.05
SA-9, SAM	4	.20
T-64/72 Tank, 125-mm	40	1.7
1X 7.62-mm MG	2,500	.075
1X 12.7 MG	200	.035
BRDM-2		
1X 14.5-mm MG	500	.145
1X 7.62-mm MG	2,000	.060
AT-5	25	.270
BMP (Troop Carrier Version)		
1X 73-mm Gun	40	.325
1X 7.62-mm MG	2,000	.060
BTR-60P		
1X 14.5 MG	500	.145
1X 7.62-mm MG	2,500	.075

transportation assets to move ammunition between depots and user units.

Planning is based on the unit of fire for each weapon. Soviet planners use the unit of fire to compute ammunition and transportation requirements.

A Soviet unit's basic load is a multiple of the unit of fire. It includes the amounts hauled in the unit trains and stored in the depot at the next higher headquarters. It varies with the unit's mission, degree of enemy resistance, etc. A multiple of the unit of fire is assigned for weapons before each major operation or phase. The multiple assigned changes with the situation. Assignment is based on the mission, the enemy, and the availability of ammunition.

The chief of rocket troops and artillery computes the number of rounds by type of weapon needed to support the commander's operations. The chief of rear services then calculates the weight to determine transport requirements.

POL

Fuels and lubricants are second only to ammunition to resupply Soviet forces. Rail, pipeline, and waterways move POL to front and army. At front, depots are maintained with a 12-day supply. At army level, POL depots maintain a 2- to 3-day supply. Advance bases are established near division rear boundaries when the distance between army depots and first echelon divisions exceeds 100 kilometers. Divisions carry a 3- to 5-day stock of mobile fuel.

At front and army POL depots, fuel is stored in tanks. Oil and lubricants are stored in 150- to 500-liter drums. Divisions use fuel tankers (5,000 liters), fuel

trailers (4,200 liters), 200-liter drums, and 20-liter cans for supply. Motorized rifle and tank divisions normally carry sufficient reserves to refuel their units twice.

Computation of fuel requirements is based on "refills." A unit's refill is the total requirement for all vehicles in the unit. For tracked vehicles, one "refill" is that amount carried aboard in integral fuel tanks. For wheeled vehicles, one refill is equivalent to that required for a 500-kilometer range.

Tactical pipelines may deliver fuel as far forward as division rear area. Pipeline brigades or battalions may be found at front and army levels.

A brigade can lay about 45 miles of 4-inch pipeline per day, while a special pipeline battalion can lay up to 19 miles per day. A recently developed pipelaying machine requires only two operators to lay and couple pipe. Tactical pipelines normally are connected to portable fuel tanks. When the pipeline extends over flat terrain, mobile pumping stations are located at approximately 9 mile intervals. In rough or mountainous terrain, the stations would be closer together.

A refueling point in rear areas may contain several rubberized-cloth fuel containers capable of refueling numerous vehicles simultaneously. It may be established along a specific route to refuel all passing vehicles.

Army, division, or regimental fuel service trucks may deliver fuel to battalion refueling points or, possibly, directly to vehicles.

Units on the move refuel their vehicles during rest halts, probably from tanker trucks and trailers. Wheeled vehicles may refuel from cans carried on board.

POL Held in Units

UNIT	IN VEHICLES (METRIC TONS)	IN UNIT LOGISTIC BASE OR TRAIN METRIC TONS
Combined Arms Army	5,000	17,500
Tank Army	4,000	11,000
Motorized Rifle Division	700	1,450
Motorized Rifle Regiment	90	160
Motorized Rifle Battalion	9	11
Tank Division	800	1,700
Tank Regiment	120	240
Tank Battalions	25	40

NOTE: Motorized rifle and tank divisions normally carry sufficient reserves to refuel their units twice.

POL Refill

UNIT	DIESEL	GAS	TOTAL
MRR (BTR EQUIPPED)	67,860	59,990	127,859 liters
	57.7	45.0	102.7 metric ton
MRR (BMP EQUIPPED)	101,737	40,896	142,632 liters
	86.5	30.6	117.1 metric ton
Tank REGT	115,350	31,763	147,113 liters
	98.1	23.8	121.9 metric ton
INDEP TANK BN (MRD)	53,246	4,636	57,882 liters
	45.3	3.5	48.8 metric ton
ANTITANK BN (MRD)	2,835	6,132	8,967 liters
	2.4	4.6	7.0 metric ton
ARTY REGT (DIV)	2,756	38,472	41,228 liters
	2.3	28.8	31.1 metric ton
ARTY REGT (ARMY)	28,010	14,121	42,131 liters
	23.8	10.6	34.4 metric ton

NOTE: A unit's refill is the total requirement for all vehicles in the unit.

Rations

Rations are issued based on meals per man per day. The Directorate of Rations Supply of the Ministry of Defense develops norms for a day's supply of rations. Norms are based primarily on expenditure of energy for caloric requirements of military personnel. The Council of Ministers approve these norms and the norms are announced by orders of the Minister of Defense. Basic ration norms determine the amount of food products that are issued to feed one man for a 24-hour period. Supplemental norms determine the amount of products to be issued in excess of the basic ration norms based on conditions under which the men are serving or the nature of their service. Dry rations are issued on the basis of 1 kilogram per man per day while fresh rations are based on 2 kilograms per man per day. Divisions carry a 5-day food supply. If possible, at least one hot meal is served per day.

The chief of the rear is responsible for all ration support. He must provide a timely and uninterrupted supply of rations and technical equipment for the preparation of food and for baking bread under field conditions.

Clothing

Enlisted personnel and officers receive military clothing at the time of induction. Supplementary clothing including field clothing is issued after they

have arrived at their unit assignment. Subsequent reissues occur at specified intervals. Personnel equipment is issued from the unit depot. The depot stamps clothing articles with the month and year that the item was issued for wear. Accountable items for group use (tents, coveralls, sports equipment) are the personal responsibility of the individual who signs the hand receipt.

Vehicles

Procurement and resupply of vehicles and end items are the responsibility of the various chiefs of service arms or technical services. The Soviet system does not have a resupply procedure for unit end items while the unit is engaged tactically. The unit in combat is replaced by another unit when attrition reaches a certain level.

Mobile contact teams fix repairable equipment and return it to action as soon as possible. This is the only way to replace equipment end items. Damaged equipment is not repaired in the field if it requires more than a few hours work. (See Maintenance and Recovery.)

A certain number of wheeled and tracked vehicles are kept in storage in peacetime to preserve them. A minimum number of vehicles are kept for normal training and administrative uses, generally from 15 to 35 percent of the vehicles authorized.

Repair pans and subassemblies are stocked at maintenance units from front through battalion levels. Repair parts supply is accomplished by routine, medium, and capital maintenance units. Repair parts that are stocked and used according to the following system:

- Routine repairs. These include replacement of tires, windshields, and common fuel and electric items such as fuel pumps and carburetors. These repairs usually are done by units at regimental or division levels.
- Medium repairs. These repairs involve replacement or overhaul of engines or transmissions, usually are accomplished by a division, army, or front.
- Capital repairs. These repairs involve major overhaul and reassembly of major subcomponents and repair parts. This activity takes place only at army and above, including evacuation to the industrial base.

Under this system, the users submit their requests to the next higher maintenance unit which supplies the item from stocks on hand. Mobile reserve supplies are maintained on trucks from front to regimental levels. They are replenished as soon as possible after being expended.

Water Supply

The water supply in the field is planned by engineers in cooperation with the medical service. When time permits, a water supply plan is drawn up to include a survey, a water supply chart, and a work schedule. The location of existing water resources in the expected zone of operations is established for the survey. The water supply chart indicates which water wells to use, where to dig new wells, and how to deploy water supply stations. The work schedule designates water points and the soldiers assigned to them. The schedule also shows daily water requirements, transportation requirements for hauling the water, and equipment for handling it.

Engineers organize water supply points in the rear of fronts and armies. Water supply points for all lower echelons are organized by organic engineer units or by the soldiers themselves under the direction of the local commander. The daily requirements for areas where water points are widely scattered are carefully computed to determine the amount of transportation needed.

The normal rate of water consumption per man is about 10 liters per day. This includes water for drinking, food preparation, washing, laundry, and bathing. Under restricted water conditions, the daily allowance is reduced to about 5 liters per day which

eliminates use of water for washing, laundry, and bathing. The absolute minimum allowance of water is 3 liters which is for drinking only and normally is not maintained for more than 3 days

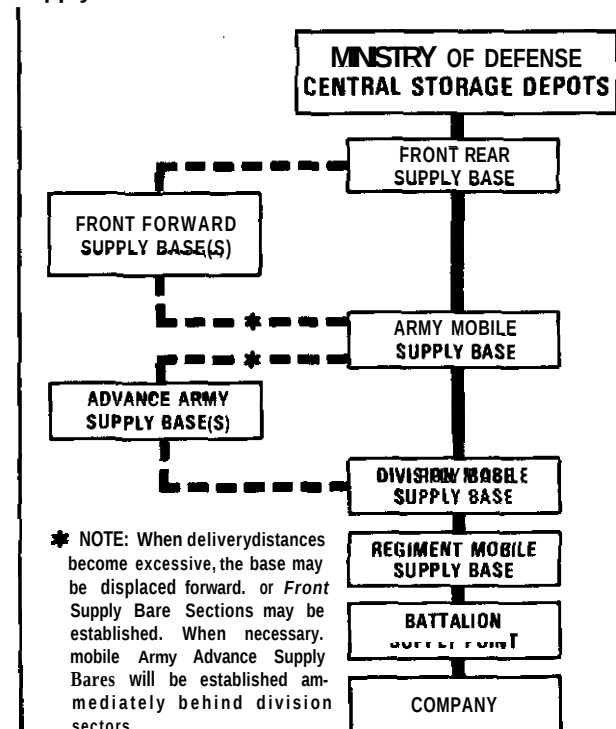
Engineer, Signal, Chemical, and Medical Items

Items peculiar to these services are procured through separate channels under the supervision of the chiefs of the services from front to regimental levels. Medical supplies are handled through independent channels, as a separate function of the chief of the rear.

Supply Distribution System

The peacetime military district, or the wartime front, receives its supplies from the national storage depots or in some cases directly from the industrial production line. Front delivers the items directly to army depots. In turn, army delivers equipment to supported divisions, and the divisions deliver to the regiments. If necessary, intermediate echelons may be bypassed to deliver items directly to the user.

Supply Installations Schematic



The fmnt and army logistic bases are large complexes providing all combat service support needs. At division level, supply bases are as close to the ongoing battle as possible. Critical ammunition and POL are uploaded and sent forward as required.

Supplies are moved in bulk mainly by rail and pipeline but also by road from the strategic rear into the operational rear where dumps are established or replenished. Fuel is sent to the tactical rear by tanker or pipeline, or is held in fuel dumps to replenish second echelon forces before they are committed.

The conditions of the ongoing battle dictate the location of dumps and stockpiles. Being highly mobile, divisions do not create stockpiles but maintain mobile stocks as far forward as possible.

At division level, replenishment depots are set up at a convenient road junction, but supplies remain uploaded whenever possible. The replenishment depot is under the command of a deputy commander for resupply, who is subordinate to the division chief of the rear. Usually, divisional supply points are well dispersed.

Air resupply may be considered on a small or moderate scale when other methods have failed or when extreme speed is essential. High-value cargo, such as nuclear warheads or NBC protective clothing, have high priority for air supply.

TRANSPORTATION

The various transportation services under MOD are traffic management, railroad operations, railroad maintenance and construction, highway construction and maintenance, highway regulation, and operation of all transport modes including pipelines.

Traffic Management

Traffic management for the MOD is the responsibility of the Central Military Transportation Directorate (VOSO). The VOSO is subordinate at MOD level to the Chid of the Rear. They are responsible for management of defense transportation requirements using military and civilian resources. The VOSO has staff elements down to a r m level. These elements advise chiefs of the rear services on transportation planning requirements. The VOSO elements collocate with civil transport authorities at rail, water, and air facilities and assist them in developing transportation plans. The VOSO officers at various transport terminals, stations, and installations are assigned as "military commandants." They exercise garrison commanders' functions for the facility.

Rail Transport

The Soviet Union has over 83,000 miles of railway track, of which over 20,000 miles are electric. This system handles from 66 to 85 percent of the freight traffic and 50 percent of the passenger traffic in the Soviet Union. Railroads are the principal means of transporting military hardware from the USSR. Rail transport also may be used to carry fuel from rear areas to the fmnt.

Rail transport in peacetime falls under the supervision of the Ministry of Railways. This agency is a uniformed service with ranks similar to the military. It also operates all civilian railway services within the USSR. Military rail forces work with civilians in everyday operations, but in wartime, the railway system reverts to military control.

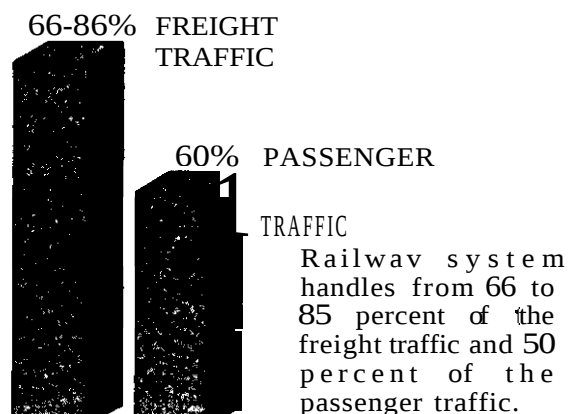
A Railroad Troops Directorate handles rail construction and maintenance of the MOD-controlled tracks. It operates trains carrying sensitive military cargo such as missiles over the civilian rail system. Also, military railroad troops participate in construction projects in the civilian sector.

In time of war, the military rail transport staff of the front chief of the rear plans and directs rail shipments and movements. Front logistic bases probably would be located near large rail centers. The chief of rail

Rail System

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transport at front level is responsible, through yard and regulating elements, for dispatch of supplies from rail stations to army logistic bases.

Motor Transport

Extensive use of motor transport begins at fmnt level. If rail transport facilities are available at front, they are used with motor transport used at army level.

Motor transport units are organic to Soviet ground forces from fmnt to battalion levels. The normal sizes of motor transport units are as follows:

- Front Motor transport brigade.
- Army Motor transport regiment.
- Division Motor transport battalion.
- Regiment Motor transport company.
- Battalion Motor transport section with the supply platoon.
- Company. No specific motor transport section.

The primary means of delivery below army level is by truck. The priority given to the movement of ammunition is shown by the two ammunition transport companies in the motor transport battalion at division level. These companies have 60 URAL-375 trucks with each having a 4.5-ton carrying capacity and 60 cargo trailers with a similar carrying capacity. These trucks have all-wheel drive (6 X 6), giving them an off-road capability that is well suited for frontline ammunition delivery.

The petroleum, oils, and lubricants (POL) transport company has the same basic truck as the ammunition company. The POL version of the URAL-375 has a 5,550-liter tank with a 4,200-liter tank mounted on a trailer. The POL company has 80 trucks and 80 trailers.

The other company in the battalion is the cargo transport company. This company has about 60 medium and light cargo trucks. Its mission is to deliver items of supply other than ammunition and bulk fuel.

A major strength of Soviet motor transport is the great quantity and extensive use of trailers. Loaded trailers are pulled forward to fighting units and exchanged for empty trailers. The empty trailers are returned to rear logistic bases for reloading. In this manner, fighting units maintain maximum quantities of critical supplies such as ammunition and fuel.

At army level, the Soviets have one or more motor transport regiments, with perhaps 1,000 plus trucks per regiment that can be used to support subordinate divisions. This massive amount of transport at army and front levels upholds the Soviet concept of "delivery forward." This concept allows the chief of the rear at these levels the flexibility to mass logistic support assets to the engaged divisions. As a result, the division

does not have to support itself. The front army has the support mission for the divisions.

Besides military transportation, the Soviets intend to use motor transport vehicles from the civilian sector. They also mobilize reserve transportation units called autokolonnas. The autokolonnas are drawn from the civilian economy to make up for shortages in military units. The individuals in the autokolonnas are experienced drivers with their own trucks and tool kits. They drive their own trucks in the armed forces and return to civilian life following demobilization.

Second echelon unit logistic elements support first echelon units. This practice increases the transport capability for logistic support to the first echelon regiments and divisions. Logistic bases can be located deeper in the front army rear areas. This placement reduces congestion in the main combat area, but requires long lines of communication that could be likely targets for enemy air interdiction strikes.

To assist in control of their huge numbers of vehicles, the Soviets have special traffic control elements. The personnel of these units are trained traffic regulators equipped with black uniforms, white belts, gauntlets, helmets, signal flags, and wands. They are positioned along march routes at critical points to direct column movement. Because maps are sensitive, restricted documents in the Soviet military, traffic regulators are critical to vehicular movements.

Demand for POL will not diminish in the future, and Soviet development of tactical pipeline construction units is designed to meet this need. Construction of pipelines as far forward as possible will allow the Soviets to decrease their reliance on motor transport of POL.

Weaknesses

The Soviet transportation system is not without weaknesses. Due to differences in rail gauges between the USSR and Eastern Europe, the Soviets have to transload at the border. They have organized the necessary equipment and personnel to conduct transloading operations. However, it is still highly likely that during peak traffic periods delays will be experienced at these border locations.

Traffic congestion also would be intense in the rear since masses of wheeled vehicles move supplies to the frontline units. Overtasking of vehicles is normal under certain conditions. During the offensive, vehicles might be overloaded 75 percent for cross-country movement and 100 percent on hard-surface roads. This overtasking leads to rapid vehicle malfunction and breakdown.

Maintenance Facilities

Maintenance facilities in the field are provided for the following items of equipment:

- Tracked vehicles.
- Wheeled vehicles.
- Artillery and ordnance.
- Engineer equipment.
- Signal equipment.
- Chemical equipment.

Service for these items is provided by fixed and mobile repair facilities that extend repair capabilities forward into the battle area.

Vehicle Repair

The Soviets classify repairs as routine, medium, or capital.

Routine Repairs. Replacement, adjustment, or repair of individual components that can be made within a short time. Major components are not disassembled. This category is performed at levels below division.

Medium Repairs. Major overhaul of at least two basic assemblies. This category of maintenance is performed at regimental or division level.

Capital Repairs. Major overhaul or complete disassembly of a piece of equipment. This is the most extensive category of maintenance and can be performed at army and front levels.

In wartime, the types of repair that are performed at each level depend on the tactical situation. Generally, they are of a lesser degree than in peacetime.

Technical Services

The Soviets also use periodic checks of equipment known as technical services. Examples of a technical service for a tank are:

Routine inspection. Conducted before tank movement as a preoperational check and takes 40 minutes.

Preventive maintenance service number 1. Conducted after tank movement and at 100- to 150-kilometer intervals during a long road march. This service takes between nine-to-twelve hours.

Preventive maintenance service number 2. A six-to-seven-hour thorough inspection performed every 1000 kilometers.

Preventive maintenance service number 3. A nine-to-twelve-hour comprehensive inspection of all vehicle systems performed every 2,000 kilometers.

Organizational Maintenance Capabilities

Company Level. Only driver and crew preventive maintenance and routine inspections are conducted at company level.

Battalion Level. The repair workshop contains a shop truck and four mechanics who make routine repairs on tracked and wheeled vehicles. In combat, this repair workshop can be reinforced with a vehicle recovery section.

Regimental Level. The maintenance company performs routine and some medium repair functions. Motorized rifle and tank regiments have both wheeled and tracked vehicle workshops. Each of these elements may form repair and evacuation groups (REGs) to provide support to subordinate battalions.

Division Level. The maintenance battalion is composed of a headquarters company; tracked vehicle maintenance company; wheeled vehicle maintenance company; ordnance maintenance company; and special task, recovery, and supply and service platoons. Within the companies, there are shop vans, supply trucks, tank retrievers, and tow trucks. Both routine and medium repairs may be performed. In combat, these companies establish damaged vehicle repair and collection points that are similar to regimental REGs.

Army Level. Combined arms and tank armies have their maintenance capabilities augmented by front as required. Army units can provide mobile detachments for forward operations if necessary.

Front Level. Front maintenance units are manned and equipped for capital repairs. These units operate from fixed facilities or mobile detachments.

Maintenance Responsibilities

The chief of missile and artillery armament at regiment and above is responsible for the maintenance of small arms, automatic weapons, mortars, artillery, and missiles. Motorized rifle and tank regiments usually have two or three armorers to perform light repair on small arms and on some automatic weapons. Armorers in artillery regiments can do routine maintenance on artillery pieces as well as on small arms. Artillery repair in tank regiments is done by the tank workshop. At division level, routine-to-medium repairs are made in the artillery maintenance company of the maintenance and repair battalion. Artillery repairs at regiment and division consist primarily of replacing parts from available stocks. At army level, there is a

MAINTENANCE AND RECOVERY

of recovery on direct responsibility for specific operations provides effective support for the high- and Maintenance responsibility above is matters. The arrangement of technical and depend commodity oriented. A staff officer at each level has the is shown in figure below.

Staff and

Responsibilities

ECHELONS	TYPE											
	Tank/Tracked Vehicle		Motor Vehicle/Tractor		Missiles/Artillery		Engineer		Signal		Chemical	
	Staff point of contact	Maintenance responsible units	Staff point of contact	Maintenance responsible units	Staff point of contact	Maintenance responsible units	Staff point of contact	Maintenance responsible units	Staff point of contact	Maintenance responsible units	Staff point of contact	Maintenance responsible units
FRONT/ARMY FRONT - Up to 600 T. ARMY - 300-500 km From FEBA	Chief main tank director (front) Deputy commander of technical matters (Army)	Armor maintenance battalion	Chief motor vehicle/tractor director (front) Deputy commander of technical matters (Army)	Wheeled vehicle maintenance battalion	Chief of rocket troops and artillery	Artillery ordnance maintenance battalion	Chief of engineers	Engineer brigade/regiment	Chief of signals Wire battalion Signal regiment/brigade		signals	Chemical defense battalion
DIVISION 20-70 km	matters	Tracked vehicle maintenance company	Deputy commander of technical matters	Wheeled vehicle maintenance company	Chief of rocket armament services	Ordnance maintenance company	Division engineer	Maintenance platoon engineer battalion	Division signal officer	Supply and maintenance company Signal battalion	chemicals	Division chemical defense battalion
REGIMENT 20-70 km From FEBA	of technical matters	Tank/track repair platoon maintenance company	Deputy commander of technical matters	Motor vehicle repair platoon maintenance company maintenance section, motor transport company	artillery	Weapons/ordnance maintenance company	Regimental engineer	Engineer company	Regimental signals	Signal company	Regimental chemical officer	Chemical defense company
BATTALION 20-70 km From FEBA	of technical matters	Battalion repair/evacuation group workshop Driver/crew maintenance	matters	Battalion repair/evacuation group workshop Driver/crew maintenance maintenance section motor	Weapons maintenance supervisor	workshop	matters	Regimental engineer company	Communications platoon leader	Communications platoon	Chemical warfare instructor	Regimental chemical defense company
COMPANY 20-70 km	Deputy commander matters	Battalion repair workshop Battalion repair/evacuation group Driver/crew maintenance	matters	Battalion repair workshop Battalion repair/evacuation group Driver/crew maintenance	of technical matters	workshop	of technical matters	Regimental engineer company	of technical matters	Battalion communications platoon	matters	Regimental chemical defense company

mobile repair shop for maintenance of artillery weapons. It can perform electrical welding and riveting, disassembly and assembly of mechanical and optical parts, and adjustment of fire control equipment. At front level, the artillery repair capability includes complete overhauling of some types and capital repairs on the heaviest types of artillery.

A signal company is found at regimental level. The operators repair signal equipment, when possible. Radio, telephone, and radar units generally have some testing equipment and spare parts for routine repairs. Medium repairs are done at division level. Signal repair units perform capital repairs at army level and higher. Engineer and chemical equipment maintenance and repair are accomplished in the same manner as signal equipment at division and higher echelons.

Recovery and Repair During Combat

During battle, a technical observation point (TOP) is established in the forward area of each combat battalion. The purpose is to monitor the battlefield for damage, to assist crews, and to call repair and recovery units forward.

The TOP is composed of several vehicle operators, one or more mechanics, a medic, the battalion NBC instructor, and at least one combat engineer. It is supervised by the deputy commander for technical matters. The entire group is mounted in an APC with radios and night vision devices. The TOP maintains radio contact with the battalion commander and with recovery and repair elements. Company TOPs may be established if the battle area is beyond observation range of the main TOP.

The chief of the TOP will assess the nature of damage and status of the crew of an out-of-service vehicle and initiate action to recover the vehicle and accomplish repairs. If repairs can be made in 5 hours or less, the battalion repair and evacuation group (REG) repairs the vehicle on site or evacuates it to the REG repair and evacuation site. A REG usually is composed of one tracked recovery vehicle, a tank repair workshop van, and a part truck. Regimental REGs may be used to support a specific battalion if required. Repair priorities are based on the required repair time, with equipment requiring the least time for repairs being completed first.

Equipment that requires more than 5 hours to repair is taken along an evacuation route to the regimental REG. The division evacuates vehicles or equipment damaged beyond the repair capability or capacity of the regiment to the division's damaged vehicle collection point. If the division is unable to repair the

damaged item, it is evacuated to either army or front for necessary maintenance. Higher-level unit transportation assets accomplish the evacuation.

If evacuation from lower to higher echelons is not possible, vehicles may be left along specified evacuation routes to await mobile maintenance teams which provide direct or backup support. The higher unit's team will remain to complete repairs as the lower units move forward in support of continuing combat operations. A major goal of the evacuation process is to clear damaged equipment from avenues of approach of follow-on combat units.

Weaknesses

Analysis of the Soviet maintenance concept reveals some possible weaknesses. First, their centralized control may be a substitute for poor low-level repair capability.

Second, divisions are heavily dependent on backup maintenance support from higher levels. During extended combat engagements, division maintenance units could not keep up with repair requirements without backup support from army or front level. Therefore, it is critical to keep the evacuation routes and lines of communication open from division to higher levels.

Third, there are no dedicated mechanics at company level. Should a damaged vehicle's operator or crew be incapacitated, the company must rely totally on maintenance support from battalion or higher level.

MEDICAL SUPPORT

The Soviet military medical system provides support to the ground forces under the direction of the Central Military Medical Directorate of the Ministry of Defense. The Central Directorate supervises the supplying of medical equipment and the training of medical personnel. Besides the peace and wartime programs directly related to the active armed forces, the system ties in with the civil sector in screening health records of draft-age youth and in performing natural disaster relief functions.

The two principal missions of the military medical service in combat are the evacuation and treatment of casualties and the prevention of disease in the area of operations. Other missions of the military medical service plans for and provides medical support to the armed forces, and supervises troop unit medical training programs. They organize and direct military medical research, and publish articles on military medical subjects. The military medical service also has

responsibility for monitoring and maintaining adequate health conditions within the area of combat operations. The primary concern of this activity in the field is the prevention of epidemic disease within the ranks. The medical service is further responsible for the combat readiness of the military medical staff of the armed forces. The staff is divided into the following categories: military physicians, *fel'dsher* (physicians' assistants), pharmacists (technical medical staff), and medical corpsmen (company medical staff).

In wartime, each command level of the Soviet Army from company to front has organic medical support units or personnel. At each level, medical support units are subordinate to both the combat unit commander, or his deputy commander for the rear, and to the next higher level of the military medical service. For example, the battalion *fel'dsher* is subordinate to both the battalion commander and to the regimental senior physician. However, the senior physician at the next higher level advises only on questions of medical support and organization. This system responds to the needs of combat units and allows close coordination between medical levels for the treatment and evacuation of casualties.

Doctrine

Soviet doctrine divides the range of medical treatment into three categories. The first category of procedures includes only mandatory lifesaving measures. The second category includes procedures to prevent severe complications of wounds or injuries. The final category of treatment includes procedures that will be accomplished only when there is a low casualty load and reduced enemy activity.

In anticipation of an overtaxed combat medical support system, Soviet doctrine emphasizes the importance of "self-help" and mutual aid among individual soldiers. Each soldier is equipped with a packet of field dressings and an NBC protection kit. He also receives a required number of hours of first-aid training each year. The concept of self-help and mutual aid extends beyond the battlefield to the casualty collection points and the battalion medical point. It is intended to reduce the demands made on trained medical personnel, particularly when the use of NBC weapons results in a sudden and massive influx of casualties.

The focus of Soviet combat doctrine on high-speed offensive operations calls for a highly mobile medical support system. Its component units must be capable of repeated forward deployment with a minimum loss of efficiency. Mobility is particularly important for

medical support units of battalions and regiments that may redeploy several times during a 24-hour period. Repeated forward redeployment of medical units and continuous rearward evacuation of casualties demand close coordination between medical levels and medical and combat commanders.

Soviet combat medical doctrine stresses the timely return of recuperated sick and wounded to their units. Consequently, at each stage of evacuation medical personnel detain and accommodate those casualties whose expected recovery period falls within prescribed limits. Only casualties whose prognoses indicate extended recovery periods reach a front or home-country hospital. Medical personnel also supervise the selection and preparation of grave sites to preclude health hazards. Responsibilities for burial, however, fall on other rear services personnel.

The basic principle of Soviet combat medical support is multistage evacuation with minimum treatment at each level. From company through front, each level has specific responsibilities for the care of the sick and wounded. Besides treating the wounded, medical personnel handle virtually all of their own administration, especially at the lower levels. As casualties move through the combat evacuation system, medical personnel at each level make effective use of medical facilities by repeated sorting of the wounded (triage). They treat the lightly wounded who can be returned to combat and those casualties who would not survive further evacuation without immediate medical attention. The Soviets emphasize that major medical treatment should be performed at an army-level mobile field hospital.

In combat operations, the military medical service recognizes four levels of administration and medical care below front level: company and battalion, regiment, division, and army.

Company and Battalion Medical Support

Company and battalion medical personnel make up the immediate battlefield support. Their primary concerns are locating and collecting casualties and providing first aid before evacuation to the regimental medical point. Each company or battery normally has one medical corpsman. A *fel'dsher* may be attached to the company when heavy casualties are anticipated. The company commander or platoon leaders, with the assistance of the medical corpsman, select and train enlisted personnel to serve as orderlies or stretcher bearers. Each platoon has a minimum of two orderlies.

Medical personnel accompany the combat units in a combat vehicle or other available transport. If separate

Regimental Medical Support

At regimental medical points, the seriously wounded are examined and provisionally treated by a physician. The regimental senior physician is a member of the commander's staff and serves as the administrative medical officer for the regiment. He usually does not practice as a physician at the regimental medical point. The chief of the medical point is subordinate directly to the regimental senior physician. He directs and participates in the medical treatment of casualties. There are two additional officers, a junior physician and a dentist. Additional medical personnel assigned to the regimental medical point include two *fel'dshers*, two medical corpsmen, a pharmacist, seven orderlies, and four ambulance drivers. Support personnel serving the medical point include an electrical mechanic, a radio operator, and a field kitchen staff.

The duties of the regimental senior physician before enemy contact are extensive. He must know the regiment's objective and the desired organization of the rear services. He receives instructions from the division senior physician with regard to augmentation and the replenishment of medical supplies.

The major elements of the regimental medical point are reception and sorting, dressing, and evacuation. Other elements are a disinfection/decontamination area and an isolation area.

The physician at the receiving and sorting element is usually the chief of the medical point. Medical orderlies and a registrar are selected from the lightly wounded to assist him. As the chief of the medical point receives casualties who have passed through the point, he divides them into four categories: those who require immediate medical attention at the regimental medical point; those who are to be evacuated to the next medical echelon with little or no treatment; those who are lightly wounded who will remain at the medical point and return to duty within 3 to 5 days; and those for whom medical treatment is futile. Within the receiving and sorting element, antibiotics, antitoxins, and antidotes are provided only to casualties with NBC injuries.

The major part of the medical treatment provided in the regimental medical point takes place in the dressing area under the direction of the junior regimental physician and dentist.

The evacuation element of the regimental medical point occupies an area of 15 to 20 square meters. It consists of separate holding areas for the stretcher-borne and for the ambulatory wounded. A *fel'dsher* supervises the evacuation element according to instructions from the medical point chief concerning evacuation priorities and modes of transportation. The

fel'dsher may also check dressings and administer analgesics.

Each regimental medical point also has an isolation section and a decontamination section. The isolation section, staffed by an orderly, accommodates those suspected of having contracted contagious diseases. Such casualties remain in isolation at the medical point until they can be evacuated to a specialized field hospital or a higher-level isolation facility.

Regimental Medical Treatment

TREATMENT OF PHYSICAL WOUNDS:

- Arrest of external bleeding.
- Treatment for shock, including injections.
- Performance of tracheotomy.
- Closed heart massage and/or intracardial injection.
- Catheterization.
- Emergency amputation.
- Primary dressing of burns.
- Removal of radioactive substances from gastrointestinal tract.

TREATMENT OF CHEMICAL AGENT CASUALTIES:

- Injection of antidotes.
- Artificial respiration and oxygen therapy.
- Treatment for pulmonary edema.
- Injection of gastric lavage.
- Administration of absorbents.

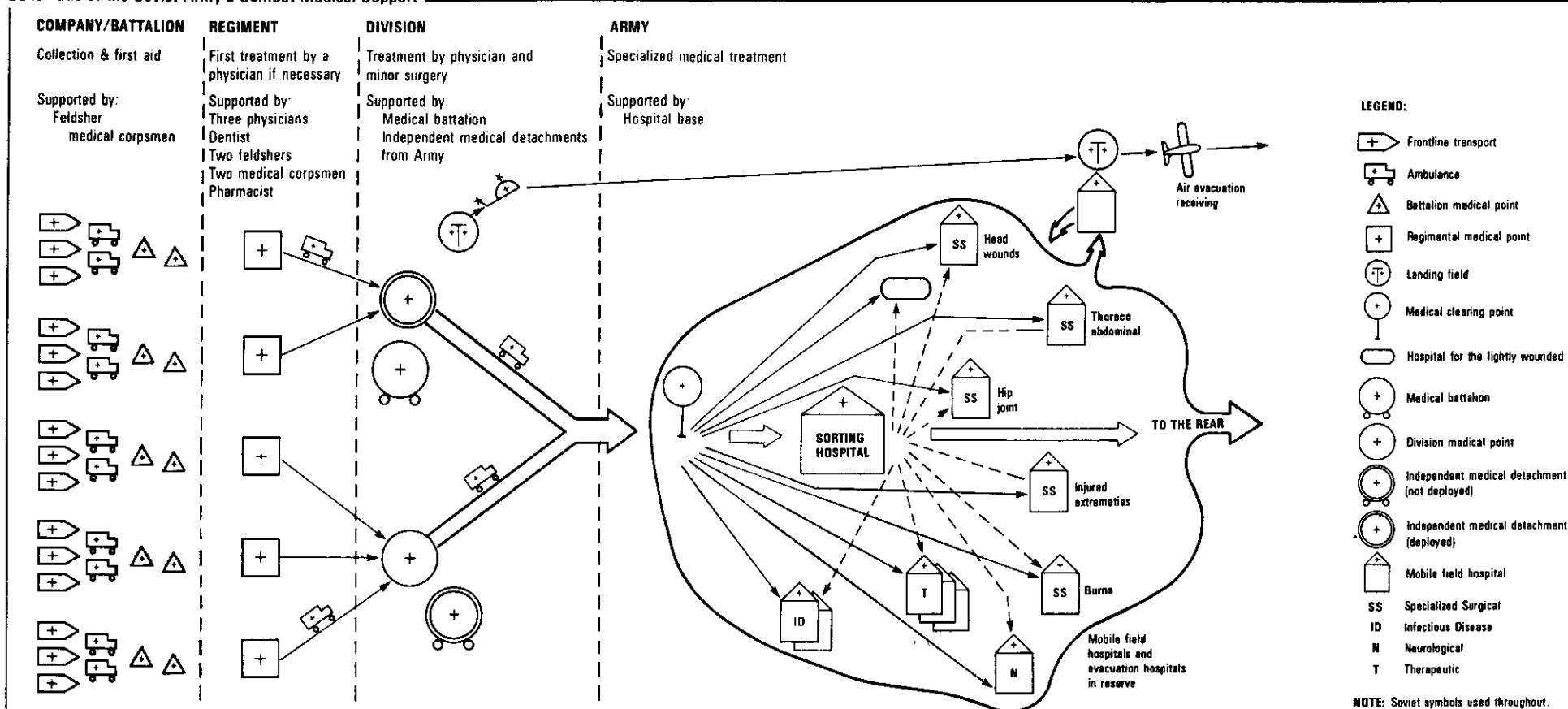
TREATMENT OF BACTERIOLOGICAL CASUALTIES:

- Isolation.
- Placement of protective mask on each infected soldier.
- Administration of antibiotics and sulfanilamide.

TREATMENT OF LOWEST PRIORITY:

- Splint improvement.
- Treatment of extensive soft-tissue wounds and injuries to large joints or nerve trunks.
- Provision of novacaine blocks for shock.
- Injection of analgesics.
- Transfusion therapy for second- and third-degree shock.
- Injection of antibiotics and antitoxins.

Schematic of the Soviet Army's Combat Medical Support



medical transport is not available, the medical corpsman accompanies the command element. The soldiers trained as orderlies travel with their squads or crews. If the regimental senior physician has a allocated additional person immediate evacuation transport to a battalion the battalion commander may in turn augment company medical personnel and transport.

Duties of the company medical corpsman include monitoring personal hygiene, inspecting the company area for health hazards, and supervising sanitary and anti-epidemic measures. He also instructs the troops in

first aid and the use of their individual medical equipment.

Before a combat operation, the battalion fel'dsher informs the corpsmen of arrangements for the evacuation of the wounded. This information includes the location of casualty collection points and the coordination of available medical evacuation transport.

A fel'dsher, a medical corpsman, an orderly, and a driver form the nucleus of the battalion medical point. The point is located 1.5 to 3KM behind the FEBA. Depending on the number of additional medical

transport vehicles assigned, several driver and orderly teams also may serve the battalion.

Battalion medical personnel collect casualties from the companies and provide minimum treatment before evacuation to the regimental medical point. Casualties remain at the battalion medical point for a very short time. The battalion fel'dsher serves as the chief of the battalion medical point and organizes and supervises battlefield medical operations. Besides monitoring the health conditions in the battalion, he directs ambulance teams manned by orderlies in the

evacuation of wounded from the company collection points.

The battalion medical corpsman's duties are demanding. He provides medical treatment to the wounded and supervises the orderlies at the battalion medical point. He also participates in medical reconnaissance for the battalion, assists in removing the wounded from the battlefield and monitors radiation levels at the battalion medical point. He directs decontamination operations, carries out anti-epidemic measures, and distributes supplies under the fel'dsher's direction.

Division Medical Support

The primary combat mission of the medical battalion is the deployment and operation of the division medical point. Before reaching this level, casualties receive only the most basic medical treatment. Even at division level, only minor surgical operations can be performed due to limited personnel and facilities. Any major operations must be deferred until the casualty reaches an army-level mobile field hospital.

The division senior physician commands the medical battalion of each combat division. As with the regimental physician, the division senior physician occupies a primarily administrative post, assuming responsibility for the overall supervision of division medical support. He also serves on the division commander's staff. His immediate subordinate, the chief of the division medical point, serves on the staff of the deputy commander for the rear.

The division medical battalion contains the following elements:

- Headquarters.
- Medical company, which contains a surgical platoon, an internal medicine platoon, a receiving and evacuation platoon, a resuscitation section, a dental section, a pharmacy section, a morgue.
- Collection and evacuation company.
- Disinfection and decontamination platoon.
- Transport platoon.
- Supply and service platoon.

The medical company forms the operational core of the division medical point. The medical company has at least three surgeons, a therapist, and a stomatologist (mouth specialist) on its staff. The disinfection and decontamination platoon is staffed with an epidemiologist and a toxicologist. It supervises the treatment of casualties who have infectious diseases and—with the field laboratory facilities—monitors the biological environment. The personnel of the collection and evacuation company are used to augment both regiment and battalion casualty collection efforts. The primary mission of the transport platoon is evacuation of casualties from the regiment to the division. At the discretion of the division senior physician, personnel and vehicles from this section may assist in battlefield casualty collection and evacuation. The supply and service platoon has responsibility for the reception, storage, distribution, and replenishment of medical and food supplies for the division and subordinate medical units.

The division medical point is designed to handle up to 400 casualties per 24-hour period. Casualties are expected to reach the division medical point from the battlefield within 12 to 18 hours. The division medical

point deploys approximately 12 kilometers from the FEBA during offensive operations or some 20 kilometers when in defense. It normally deploys along the main supply route and uses existing structures when possible. Full deployment of the division medical point requires an area 150 meters square. The receiving and sorting facilities deploy first, closely followed by the disinfection and decontamination facilities and the operating area. The dressing station and hospital accommodations receive the next priority. The evacuation section, the medical supply point, and the medical personnel accommodations make up the final stage of deployment. Full deployment requires approximately 2 to 3 hours.

The initial steps of division sorting remain the same as at the regimental level. Casualties who present a hazard to others because of NBC contamination are sent to the decontamination or isolation area. The physician at the receiving and sorting area divides the patients into the same four general categories as was done at regimental level. Though the majority of wounded continue evacuation through the medical point with only minimal treatment, more casualties remain for treatment and/or convalescence than is the case at the regimental medical point. The larger staff and facilities permit a broader range of medical treatment, but the rate of casualties and the battle conditions determine the extent.

The Soviets stress the need for rapid and efficient performance of battlefield medicine in the event of mass NBC casualties. The facilities and organizational arrangements for the treatment of NBC casualties that exist at every command level indicate Soviet anticipation and preparation for combat in an NBC environment.

As with the battalion and regimental medical points, the division medical point maintains close contact with advancing combat units. Soviet doctrine calls for movement by echelon to accomplish the necessary forward deployment while still providing an acceptable level of care for the incoming wounded and non-transportable casualties. As many of the personnel and as much equipment as can be spared are moved to the next deployment area. The division senior physician coordinates with the army chief of medical service in arranging for the transfer of the casualty flow to another division medical point or an independent medical detachment.

Army-Level Medical Support

At army level, there are two types of medical support elements: the independent medical detachment and

the mobile field hospital. Independent medical detachments are medical battalions under the command of the army chief of medical service. He uses these units to augment the division medical battalions in the event of mass-casualty situations. Independent medical detachments also ease the burden on division medical points during forward deployment. When an independent medical detachment deploys, the army chief of medical service informs the regimental and division senior physicians of the deployment so that casualty evacuation can be diverted when necessary.

The primary medical support unit at army level is the mobile field hospital. The army-level mobile field hospitals form the fourth administrative level of the military medical service. This is the first level of the combat evacuation system capable of doing major surgery and giving extended care. These hospitals are mobile and capable of forward deployment. They constitute the largest and most extensive military medical facility with this capability. These and other army-level hospitals generally are organized into a hospital base that deploys along the major evacuation route from the division medical points and independent medical detachments. This base may include any or all of the following types of hospitals:

- Mobile field hospitals: infection and disease, specialized surgical, neurological, therapeutic.
- Sorting hospital.
- Hospital for the lightly wounded.
- Evacuation hospital.

The hospital base deploys close to the FEBA to allow casualties to arrive from the battlefield within 24 hours. The individual mobile field hospitals deploy no closer than 5 kilometers to one another to reduce the effect of nuclear attack. Deployment of a specialized mobile field hospital is accomplished within 2 to 4 hours after arrival at the deployment area. It is in these hospitals that the majority of casualties, having passed through subordinate echelons with minimum treatment, receive specialized and intensive care. To make such care easier, there are teams of medical specialists with support personnel and equipment that can augment the normal staff of a mobile field hospital. These teams usually consist of surgical specialists such as ophthalmologists, neurosurgeons, and ear, nose, and throat specialists.

In extreme circumstances, direct evacuation of casualties is made from regiment, or even battalion, to the hospital base. In this situation, the sorting hospital deploys in the forward area of the hospital base to receive, diagnose, and dispatch incoming wounded to the appropriate mobile field hospital. The sorting hospital establishes a medical distribution point

forward of the hospital base. Here physicians examine casualties aboard each ambulance and, if the nature of their injuries permits, routes the ambulance directly to the appropriate mobile field hospital.

The evacuation hospital deploys in the rear of the hospital base to treat casualties awaiting evacuation to home country hospitals and to receive casualties from the other mobile field hospitals. Aeromedical evacuation, particularly by helicopter, will probably play an important role. Helicopters can evacuate seriously wounded troops directly from the battlefield to the army hospital base, the lowest level capable of performing major surgery.

Soviet doctrine does not call for the frequent redeployment of hospitals established at the **front** level. These hospitals often are established in existing military and civilian medical institutions. They receive those casualties whose recuperation period exceeds acceptable limits for the mobile field hospital.

REAR AREA SERVICES

Data available on rear area services are limited. The Soviets consider these topics sensitive, and as a result little information is available in open sources.

Personnel Replacements

The personnel replacement system is significant to the Soviets because of the size of their forces. Personnel replacement during intensive combat operations in both conventional and nuclear environments has been the subject of much study by the Soviets. Soviet personnel replacement procedures are structured on four levels: individual, incremental, composite unit, and whole unit.

Individual Replacements. This system is used in both peacetime and wartime. It appears to be most applicable in the officer, some NCO, and specialist assignments. The sources of replacement personnel are school graduates, reserve assignments, medical returnees, and normal reassignments.

Incremental Replacements. This system, dating from World War II, replaces entire small units such as weapon crews, squads, and platoons. Replacements can be obtained from training units or from follow-on forces.

Composite Unit Formations. When continuity of the mission is of paramount importance, composite units may be formed from other units reduced by

combat operations. Composite units may be constituted up to division or corps level.

Whole Unit Replacement. Since Soviet planners first considered the mass casualties associated with nuclear war, this particular method has received almost continuous study. Within this concept, entire armies can be brought forward from second echelon or reserve forces to replace first echelon forces rendered ineffective. Passage of large units through other forces to forward positions is a complex operation that requires detailed planning and effective control. The Soviets are aware of the problems associated with such a maneuver.

Soviet planners realize that personnel replacement requirements will encompass all of the above procedures. The Soviets receive semiannual experience in both individual and bulk replacement operations. In their troop rotation exercises, thousands of troops are moved by both air and rail transport. The Soviet Union devotes manpower and money to the retention of a large reserve base that is updated constantly by troops released from active duty. The Soviet reserve pool consists of several million men with relatively recent training. Finally, the Soviet Army maintains a system of training units throughout its forces to train new recruits, some reservists, and some specialists. Personnel services and replacement procedures are exercised and evaluated frequently.

Civil Affairs

It is likely that activities involving Soviet forces and citizens of other nations, in particular other Warsaw Pact countries, are administered in wartime by Communist Party and Soviet governmental organs, political sections of Soviet military elements, and sections of both the KGB (Committee of State Security) and the MVD (Ministry of Internal Affairs).

Military Police

The Soviet armed forces do not have a precise military element that would equate to the US military

police. KGB and MVD elements provide some security functions. An element known as the Commandant's Service, or Komendatura, possesses some military police-related functions. These functions include traffic control, enforcement of military discipline, and some civil affairs actions.

Prisoners of War and Civilian Detainees

This subject is among the most sensitive issues to the Soviets. Involvement of KGB, MVD, and political organs is probable.

DEVELOPMENTAL TRENDS

The main direction of improvements in the Soviet service support system over the past decade has been to increase mobility, efficiency, and standardization. The Soviets have tried to bring new technology and improved management techniques into their service support operations. These measures have led to large increases in the "logistical tail."

Prepackaging and containerization of supplies into standard units of issue have been initiated to reduce handling and delivery time. Computers have been introduced to allow the chief of the rear at operational and strategic levels to evaluate his resources and assets quickly for a proposed operation. He can formulate support plans which optimally support the commander's concept of operations and respond to the support requirements generated by rapid changes in the battlefield situation.

Railway facilities have been improved. Also, increasing emphasis is being placed on the use of aerial, automotive, and pipeline delivery.

Some apparent disparities exist between rear area theory and practice. Soviet doctrine calls for the continuation of combat operations at night. It also prescribes nighttime as the primary time for combat units to replenish their ammunition, fuel, food, and other supplies. However, Soviet writers frequently note the difficulties in accomplishing nighttime link-up between support and advancing supported units in field exercises.

CHAPTER 14

REAR AREA PROTECTION

In the Soviet view, rear area protection and security comprise the comprehensive coordination of more than just the rear of military forces in contact with the enemy. The Soviets also believe that general war will involve more than the armed forces fighting along established front lines. A future large-scale war, whether conventional or nuclear, will include widespread espionage, sabotage, infiltration, airborne and amphibious operations, and massive destruction that will occur throughout the nation. So total war will involve the total population.

The Soviets have established an extensive and encompassing program of organizations and procedures to conduct rear area security. Security and protection of the rear area is critical. It includes vital installations, airfields, communications and transportation nets, critical industries, strategic weapons, and large troop formations. In the event of a large-scale general war, this program would immediately go into operation insuring, among other things, the following:

- Rear area security and protection of combat, combat support, and combat service support units and areas of operation.
- Security and protection of lines of communication.
- Security and protection of borders and coastlines.
- Mobilization of reserves.
- Civil defense.
- Suppression of local insurgents.
- Defense against airborne attack.
- Defense against unconventional warfare (including saboteurs, partisans, and propaganda).
- Damage control.

UNIT SECURITY

All units, from the smallest through front level, are responsible for the security of their own rear areas. In larger organizations (regiment and up), elements of the second echelon have most of the responsibility for security. Organic personnel and equipment carry out basic security and damage control in the rear area. Appropriate measures include the following:

- Comprehensive security plans.
- Locating support units near combat troops for added protection.
- Temporary assignment of combat units to security missions (usually second echelon elements).
- Employment of guards, sentries, and patrols.

- Emergency use of weapons and equipment undergoing repair (crews generally remain with equipment during repair).

- Use of convalescent sick and wounded for defense during critical situations.

At army and front level, electronic warfare and air defense elements are located to provide thorough coverage of the entire area of operations. Combat support and combat service support elements also have rear area security responsibilities from the rear area of units in contact to the rear boundary.

KGB TROOPS

Besides its major role in intelligence activities, the Committee for State Security (KGB) is responsible for border security and special communications. In the event of an enemy invasion, the KGB border guard detachments would fight delaying actions until relieved by ground forces units. Conversely, during a Soviet offensive, border guard missions would include securing the operational armies' rear, conducting counterespionage, forestalling desertions, thwarting deep enemy penetrations, and conducting mop-up operations in the rear area.

MVD TROOPS

Interior troops of the Ministry of Internal Affairs (MVD) are primarily responsible for maintaining domestic security. Missions in the civilian sector include criminal investigation, motor vehicle inspection and control, and issuance of visas. In wartime, they also have the missions to suppress insurrection, to conduct counterespionage, and to transport prisoners.

KGB and MVD troops are organized, equipped, and trained much the same as Soviet ground forces, but special attention is given to security functions. In general, KGB and MVD troops are considered to be extremely reliable and are very well trained.

MILITARY DISTRICTS

The 16 Soviet military districts are administrative commands which do not correspond to the political boundaries of the Soviet Union's 15 republics. In wartime, the assets of many military districts probably would be organized into fronts, providing both the command and control structure and units for combat operations.

Military activity within a military district continues, however, even when troop units are deployed elsewhere. Military installations such as schools and garrisons, and operations such as logistics and communications would continue to function, and in certain instances, even be augmented.

Military district mobilization plans cover not only units, installations, and activities of the district, but also the call-up of reserves. Reserve call-up is selective to permit orderly activation and to insure an adequate labor force for critical civilian occupations. Civil defense activities also are conducted through the military district command structure.

CIVIL DEFENSE

Overall civil defense of the Soviet Union is directed by a Deputy Minister of Defense. Civil defense troops, numbering approximately 40,000, are a branch of the Soviet military under the command of the Chief of Civil Defense. They are subordinate to deputy commanders for civil defense in the 16 military districts.

Most civil defense efforts involve organization and training for survival, rescue, repair, and restoration. The intent is to involve the Soviet population. Civil defense is one of several means of involving the population in disciplined activity and of keeping them aware of the ever-present "threat" posed by the enemies of the Soviet Union.

Perhaps 70 percent of workers engaged in vital industry belong to civil defense organizations. Their principal objectives are:

- To prevent panic.
- To maintain law and order.
- To maintain agricultural and industrial production.
- To insure organized decontamination.

Civil defense activities involve over thirty million people and are closely tied to the overall war and survival effort. Organized and trained personnel, controlled by the government, will be capable of at least the following activities:

- Fire fighting.
- First aid.
- Camouflage of industrial targets.
- Chemical defense and decontamination.
- Damage control.
- Rescue.
- Public order and safety.
- Communication and warning.
- Evacuation.
- Reconnaissance.
- Radiological monitoring and decontamination.

Civilian civil defense formations insure a potentially valuable labor force for the Soviets. They are also a source for intelligence gathering, particularly in areas threatened by airborne or seaborne attack, guerrilla or partisan activity, or large-scale invasion.

Civil defense receives extensive propaganda treatment in the Soviet media. There is civil defense training in schools, for housewives, and for retirees besides the training given in factories and civil defense formations.

However, Soviet civil defense programs have been criticized for their lack of imagination, heavy ideological (rather than practical) emphasis, lack of realism, poor quality instruction, inadequate planning, and poor coordination. Many mass evacuation plans have not been rehearsed for years, if at all. Nevertheless, the Soviet civil defense program reaches virtually every citizen in the nation with at least minimal instruction and indoctrination. Despite widespread cynicism and apathy, the program is large and growing. It is probably the most highly developed civil defense effort in the world.

RESERVES

Soviet conscripts have a reserve obligation until age 50. The total Soviet potential reserve manpower pool is estimated to be twenty-five million men. About 6.8 million of these men are young, recently-trained veterans.

Soviet reservists are not organized in specific reserve units. Instead, reservists called up for training report to existing active units. In the event of a large-scale mobilization, reservists will be assigned where required. Many would fill out low-strength divisions and other units.

The Soviet reserves system provides a vast resource of former servicemen. Younger and more recently trained personnel probably would be mobilized for combat service. Older reservists easily could take over numerous garrison, guard, and rear area responsibilities.

Given such vast numbers of men with prior military service plus a citizenry which has received considerable exposure to civil defense indoctrination and training, the Soviets can count on a population that is potentially more aware and prepared, and that is used to discipline. (For more information on Soviet reserves, see FM 100-2-3).

INDUSTRIAL SURVIVAL

The Soviets expect to survive and to win any future war. To do this, special attention has been devoted to

protecting the industrial and technological base. Protective measures include dispersion of industrial facilities, physical hardening of factories, stockpiling materials and parts, constructing shelters for workers, and creating evacuation plans. Dispersion reduces vulnerability but it also increases the transportation problem and the security burden.

DOSA AF

The Voluntary Society of Assistance to the Army, Aviation, and the Navy (DOSAAF) is yet another Soviet organization that could play a role in rear area security and protection. DOSAAF is a paramilitary organization. Its primary goals are producing a military-conscious society, preparing the civilian population for military emergencies, and preparing preinduction-age youth for military service. Membership is open to anyone

over 14 and the Soviets claim about eighty million members. DOSAAF stresses each citizen's obligation to defend the Soviet Union. Its basic propaganda themes are patriotism and the external threat.

Major DOSAAF activities include sports, preinduction military training, and technical specialist training. Many reservists join DOSAAF to take advantage of the latter activity, as it is a good way to acquire or improve technical skills. DOSAAF activities are coordinated with the Komsomol (Young Communist League) and with civil defense organizations.

In practice, the DOSAAF program sometimes fails to achieve its goals. It has a large, cumbersome bureaucracy. DOSAAF has been criticized in the Soviet press for inefficiency, inadequate coordination, and poor quality instruction. The premilitary training program sometimes is criticized for its lack of quality. (For more information on DOSAAF, see FM 100-2-3.)

GLOSSARY

ACRONYMS AND ABBREVIATIONS

AAA	antiaircraft artillery	EMP	electromagnetic pulse
AAG	army artillery group	ESM	electronic warfare support measures (US term)
AAICV	airborne amphibious infantry combat vehicle	FAC..	forward air controller
ACRV	artillery command and reconnaissance vehicle	FEBA	forward edge of the battle area (US acronym used in this manual as the equivalent of the Soviet term "forward edge")
ACV	armored command vehicle	FOP..	forward observation post
AGI	auxiliary intelligence gatherers	Frag-HE	fragmentation high-explosive round
AICV	amphibious infantry combat vehicle	FROG	free rocket over ground
AMRP..	artillery mobile reconnaissance post	FS	fin-stabilized round
An-(no.)	Soviet designation for aircraft from Antonov design bureau	FSE	forward security element (of the Advance Guard)
APC-T..	armor piercing capped tracer round	GAZ-(no.)	medium truck produced by Gorkiy Motor Vehicle Plant
API-T	armor piercing incendiary tracer round	GRU	general staff's main intelligence directorate
AP-T	armor piercing tracer round	HE	high-explosive round
APVO	Aviation of National Air Defense	HEAT	high-explosive antitank round
AS-(no.)	US designation for Soviet air-to-surface missile	HEI	high-explosive incendiary round
ASC	armored scout car	HEP.....	high-explosive plastic round
ASM	air-to-surface missile	HVAP	hyper-velocity armor piercing round
ASW	antisubmarine warfare	HVAPFSDS ..	hyper-velocity armor piercing fin-stabilized discarding Sabot round
AT-(no.)	US designation for Soviet antitank guided missile	IFV..	infantry fighting vehicle
ATGM	antitank guided missile	Il-(no.)	Soviet designation for aircraft from Ilyushin design bureau
BAF	battalion assault force (naval infantry)	INA	information not available at the UNCLASSIFIED level
BVR	beyond-visual-range	IR.....	infrared
CBU	cluster bomb unit	IRBM	intermediate-range ballistic missile
CES.	chief of engineer services	I-T	incendiary tracer round
CINC..	commander-in-chief	KamAZ-(no.) ..	medium truck produced by Kama River Motor Vehicle Plant
COMINT.....	communications intelligence (US term)	KGB	Committee for State Security
COP	command observation post	KrAZ-(no.) ...	heavy truck produced by Kremenchug Motor Vehicle Plant
CRP..	combat reconnaissance patrol	LMG	light machinegun
CRTA	chief of rocket troops and artillery	LOC..	line of communications
DAG	division artillery group	LOP	lateral observation post
DF	direction finding	LRA	long range aviation
DOI.....	date of introduction	LuAZ-(no.) ...	light truck produced by Lutsk Motor Vehicle Plant
DOSAAF	Voluntary Society of Assistance to the Army, Aviation, and Navy (premilitary training organization)	LZ	landing zone
DZ	drop zone		
ECM	electronic countermeasures		
ELINT.....	electronic intelligence (US term)		

MAZ-(no.)	heavy truck produced by Minsk Motor Vehicle Plant	SACLOS	semiautomatic-command-to-line-of-sight guidance
MCLOS	manual-command-to-line-of-sight guidance	SAM	surface-to-air missile
Mi-(no.)	Soviet designation for helicopter from Mil design bureau	shp..	Shah horsepower
MiG-(no.)	Soviet designation for aircraft from Mikoyan-Gurevich design bureau	SLAR	side-looking airborne radar
MOD..	Ministry of Defense; Minister of Defense	SP	self-propelled
MOD..	Mobile Obstacle Detachment (Engineer Element)	SPAAG	self-propelled antiaircraft gun
MOP	mobile observation post	SRBM..	short-range ballistic missile
MPA	Main Political Directorate	SRF	strategic rocket forces
MRBM	medium-range ballistic missile	SS	spin-stabilized round
MRD	motorized rifle division	SS-(no.)	US designation for Soviet surface-to-surface missile
MRL	multiple rocket launcher	SSM	surface-to-surface missile
MRR	motorized rifle regiment	STOL	short takeoff and landing aircraft
MSD	movement support detachment (engineer element)	Su-(no.)	Soviet designation for aircraft from Sukhoi design bureau
MVD	Ministry of Internal Affairs	TASM	tact-air-to-surface missile
OMG	operational maneuver group	TD	tank division
POL..	petroleum, oils, lubricants	TEL	transporter-erector-launcher
PPO	primary party organization	TELAR	transporter-erector-launcher-and-Radar
PGM	precision-guided munitions	TOP.	technical observation point
PVO..	air defense	TR	tank regiment
PWP	plasticized white phosphorus	Tu-(no.)	Soviet designation for aircraft from Tupolev design bureau
RAG	regimental artillery group	TVD..	theater of military operations
RAP.	rocket-assisted projectile	UAZ-(no.)	light truck produced by Ulyanovsk Motor Vehicle Plant
RDF..	radio directionfinding	Ural-(no.)	medium truck produced by Ural Motor Vehicle Plant (not an acronym)
REC..	radioelectronic combat	UW	unconventional warfare
REG	repair and evacuation group	VOSO	Central Military Transportation Directorate
rkh	Russian abbreviation (literally: radio-chemical) used as suffix in Soviet designations for NBC reconnaissance vehicles	VTA	military transport aviation
RVGK	Reserve of the Supreme High Command	VTOL..	vertical takeoff and landing
SA-(no.)	US designation for Soviet surface-to-air missile	VVS..	Soviet Air Force
		WP..	white phosphorus
		Yak-(no.)	Soviet designation for aircraft from Yakovlev design bureau
		ZIL-(no.)	medium truck from Likhachev Motor Vehicle Plant

NATO NICKNAMES

Air-To-Surface Missiles

KANGAROO, AS-3
KELT, AS-5
KERRY, AS-7
KINGFISH, AS-6
KIPPER, AS-2
KITCHEN, AS-4

Aircraft

BACKFIRE, Tu-26
BADGER, Tu-16
BEAR, Tu-95
BLACKJACK, Tu-?
BLINDER, Tu-22
BREWER, Yak-28
CAMBER, 11-86
CANDID, 11-76
CLINE, An-32
COALER, An-72
COCK, An-22
COOT, 11-18
CUB, An-12
CURL, An-26
FARMER, MiG-19
FENCER, Su-24
FIREBARB, Yak-2BP
FISHED, MiG-21
FITTERA, Su-7B
FITTER C, Su-17
FLANKER, Su-27
FLOGGER B, MiG-23
FLOGGER D, MiG-27
FOXBAT, MiG-25
FOXHOUND, MiG-31
FRESCO, MiG-17
FULCRUM, MiG-29

Antitank Guided Missiles

SAGGER, AT-3
SPANDREL, AT-5
SPIGOT, AT-4
SPIRAL, AT-6
SWATTER, AT-2

Helicopters

HALO A, MI-26
HARE, MI-1
HARKE, MI-10, M1-10K
HIND, MI-24
HIP, MI-8
HOMER, MI-12
HOOK, MI-6
HOPLITE, MI-2
HOUND, MI-4

Radars

BIG FRED, MT-SON
END TRAY, RMS-1
FIRECAN, SON-9, SON-9A
FLAP WHEEL
FLAT FACE, P-15
GUN DISH
LONG TROUGH
PORK TROUGH
PORK TROUGH 2, SNAR-6
SMALL FRED, BMP-SON
SMALL YAWN

Surface-To-Air Missiles

GAINFUL, SA-6
GAMMON, SA-5
GANEF, SA-4
GASKIN, SA-9
GECKO, SA-8
GOA, SA-3
GRAIL, SA-7
GUIDELINE, SA-2

Surface-To-Surface Missiles

SCALEBOARD, SS-12
SCUD A, SS-1b
SCUD B, SS-1c

FM 100-2-2

16 JULY 1984

By Order of the Secretary of the Army: 0

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The Adjutant General

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